

**WEST VIRGINIA**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION**  
**OFFICE OF ABANDONED MINE LANDS**  
**AND RECLAMATION**

-----

**COUNTY**  
**OF**  
**LOGAN**

-----

**NAME OF PROJECT**

**PIG TAIL BRANCH DRAINAGE**

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**NOTICE**

**ALL PAPERS BOUND WITH OR ATTACHED TO**  
**THE BID FORM ARE A NECESSARY PART**  
**THEREOF AND MUST NOT BE DETACHED**

# PROJECT SPECIFICATION BOOK

## INDEX

<u>ARTICLE</u>	<u>PAGES</u>
I. DEFINITIONS	1 - 3
II. GENERAL CONDITIONS	4 - 23
III. GENERAL REQUIREMENTS	24 - 37
IV. SPECIAL CONDITIONS	38- 42
V. WAGE & HOUR INFORMATION	43
VI. CONSTRUCTION SPECIFICATIONS	44



**ARTICLE I - DEFINITIONS**

## ARTICLE I - DEFINITIONS

- 1.0 "Bidder" refers to the person, firm, or company offering to furnish the work called for by the specifications herein.
- 2.0 "Chief" shall mean the Chief of the West Virginia Department of Environmental Protection's, Office of Abandoned Mine Lands & Reclamation.
- 3.0 "Regional Engineer or Engineer" refers to the head of the Construction Group of the Office of Abandoned Mine Lands & Reclamation of the West Virginia Department of Environmental Protection in each regional office.
- 4.0 "Construction Supervisor" refers to the regional supervisor of the West Virginia Department of Environmental Protection, Office of Abandoned Mine Lands & Reclamation Construction Inspectors.
- 5.0 "Contract" refers to a purchase order placed by the West Virginia Department of Administration on behalf of the Department of Environmental Protection and accepted by the Contractor together with these specifications and all other documents incorporated therein by reference.
- 6.0 "Contract Documents" consist of all of the articles, sections, and attachments to the contract, including Information for Bidders, General Conditions, General Requirements, Special Conditions, drawings, specifications, all addenda issued prior to execution of the contract, and change orders and other written modifications issued after execution of the contract and executed by both parties to the contract.
- 7.0 "Contractor" refers to the person, firm or company contracting with the West Virginia Department of Environmental Protection to furnish the work called for in the contract.
- 8.0 "Cabinet Secretary" refers to the Cabinet Secretary of the West Virginia Department of Environmental Protection.
- 9.0 "DEP" means the West Virginia Department of Environmental Protection.
- 10.0 "Design Engineer" shall mean the representative of the Office of Abandoned Mine Lands & Reclamation's Engineering Section or the Architect/Engineering consulting firm, whichever designed the project.
- 11.0 "Inspector" shall refer to DEP's Inspector, who monitors all construction operations at the project site.
- 12.0 "Project" shall mean the Abandoned Mine Lands Project described and referred to by the specifications herein.
- 13.0 "Sub-contractor" refers to the person, firm or company contracting directly with the Contractor and not with DEP to furnish the Contractor with any portion of the work called for by the contract.

## ARTICLE I - DEFINITIONS

- 14.0 "Work" shall be understood to mean and include any and all of the labor, supervision, services, materials, machinery, equipment, tools, supplies and facilities called for by and required to complete the contract.
- 15.0 "Stabilization Measures" as noted in Section 5 Vegetative Practices shall be understood to mean and include any/all measures necessary for preventing erosion & sediment to the project site. This may include seeding and mulching, mulching without seed, silt fence, wattles. Check dikes, sumps or any other method required to stabilize a site that work has stopped for a time exceeding fourteen (14) days.

**ARTICLE II - GENERAL CONDITIONS**

## ARTICLE II – GENERAL CONDITIONS

### Sections Included:

- 1.0 Enumeration of Contract Documents
- 2.0 Correlation of Documents
- 3.0 Examination of Premises
- 4.0 Materials & Workmanship
- 5.0 Guarantee & Maintenance
- 6.0 Supervision & Construction Procedures
- 7.0 Permits, Laws, Regulations, & Rights of Entry
- 8.0 Safety Requirements
- 9.0 Protection of Persons & Property
- 10.0 Insurance & Worker's Compensation
- 11.0 Labor Laws, Ordinances, Wages & Other Conditions
- 12.0 Subcontractors
- 13.0 Time
- 14.0 Payments & Completion
- 15.0 Surety Bonds
- 16.0 Changes in the Work
- 17.0 Uncovering & Correction of Work
- 18.0 Assignment of Contract

**ARTICLE II - GENERAL CONDITIONS**

**1.0 ENUMERATION OF CONTRACT DOCUMENTS**

**1.1 Drawings**

Construction drawings (9 sheets) for the reclamation of the project as prepared by for the West Virginia Department of Environmental Protection, Office of Abandoned Mine Lands and Reclamation, 601 57th Street, SE, Charleston, West Virginia 25304-2345, Telephone (304) 926-0485.

**1.2 Specifications**

See Index

**1.3 Addenda**

No. _____	Date _____
No. _____	Date _____
No. _____	Date _____
No. _____	Date _____

**2.0 CORRELATION OF DOCUMENTS**

- 2.1 The intent of the contract documents is to include all labor, materials, equipment, operations and transportation necessary for the proper execution and completion of the work. The contract documents are complementary and what is required by one is required by all.
- 2.2 The Contractor shall carefully study and compare the contract documents and shall at once report to DEP any error, inconsistency or omission it may discover. Contractor shall not proceed with the work affected by such error, inconsistency, or omission until resolved to the satisfaction of itself and DEP.
- 2.3 The drawings and specifications are correlative and shall be accepted and used as a whole and not separately. Should any item be omitted from the drawings and be included in the specifications, and be required to complete the work under the contract, it shall be executed as if shown on both and contained in both; except that it is not intended that items or work not applicable or required be provided unless it is consistent therewith and reasonably inferable therefrom as being necessary to produce the intended results.
- 2.4 In case of disagreement or conflict between drawings and specifications, or inconsistencies, errors, or if omissions be discovered in the drawings and specifications, or if in any part the meaning of either or both shall be considered obscure or uncertain, the Chief or his/her authorized

## ARTICLE II - GENERAL CONDITIONS

representative shall be immediately notified thereof. No work so affected by such circumstances shall proceed until the Chief or his/her authorized representative renders a decision and/or interpretation thereon. Large scale drawing details shall take precedence over drawings of lesser scale. Words and abbreviations which have well known technical or trade meanings are used in the contract documents in accordance with such recognized meanings.

### 3.0 EXAMINATION OF PREMISES

- 3.1 Before submitting proposals for the work, each bidder will be held to have examined the premises and satisfied itself as to the existing conditions under which it will be obliged to operate, or that will in any manner affect the work under the contract. Bidders shall have become familiar with the drawings and specifications and have compared them with existent conditions.
- 3.2 By executing the contract, Contractor represents that it has visited the site, familiarized itself with the local conditions under which the work is to be performed, and correlated its observations with the contract documents. No allowance will subsequently be made by reason of neglect or error on the part of the Contractor for failing to inform itself of the requirements and conditions contained herein.

### 4.0 MATERIALS & WORKMANSHIP

- 4.1 All installed materials and equipment shall be new, and all materials, equipment, and workmanship shall be of kind and type specified, and in all cases, be of good quality. Contractor shall, if required, furnish satisfactory evidence as to kind and quality of its materials, equipment and workmanship.
- 4.2 The Contractor shall provide and pay for all labor, materials, equipment operations, tools, construction equipment, and machinery, transportation, water, heat, utilities, and other facilities and services necessary for the proper execution and completion of the work. The Contractor at all times shall supply sufficient skilled and other labor necessary to adequately fulfill the requirements of the drawings and specifications, and provide for expeditious and practicable execution of the work to its completion.
- 4.3 The installation or application of all devices and materials shall be in accordance with the manufacturer's installation application data, shop drawings and instructions, unless otherwise provided herein.

### 5.0 GUARANTEE & MAINTENANCE

- 5.1 The materials and workmanship affected by the Contractor are subject to the guarantee established by custom of the respective trades. In the absence

## ARTICLE II - GENERAL CONDITIONS

of a trade guarantee custom or a special guarantee provision, the work, both as to the materials and workmanship, shall upon acceptance of final inspection by the Contractor be considered guaranteed by the Contractor for one (1) year from the date of the acceptance of the work. Neither the final acceptance nor the final payment shall relieve the Contractor of responsibility for negligence or faulty materials, and for defects appearing within the guarantee period shall be remedied at the expense of the Contractor upon written notice.

- 5.2 During the one-year guarantee period, the Contractor will maintain the project to the conditions existing at the date of the acceptance of the work. Any failures due to the negligence or workmanship of the Contractor in any of the work which develop during the guarantee period shall be corrected by the Contractor at its expense.
- 5.3 The one-year guarantee period shall not be construed as being an extension of the performance time allotted for work under the contract. Failure to perform warranty work shall extend performance time until work is completed and accepted.
- 5.4 Guarantees concerning revegetation may be further defined in the technical specifications contained herein.

### 6.0 SUPERVISION & CONSTRUCTION PROCEDURES

- 6.1 The Contractor shall supervise and direct the work, using its best skill and attention. It shall be responsible for all construction means, methods, techniques, and procedures, coordinating all portions of the work, and for cooperating with appropriate DEP personnel and with other contractors in every way possible.
- 6.2 The Contractor shall be responsible to DEP for the acts and omissions of its employees, its subcontractors and their agents or employees, and other persons performing any of the work under a contract with the Contractor.
- 6.3 The Contractor will be supplied with three (3) copies of the plans and specifications. It shall have available on the work site at all times one (1) copy of said plans and specifications. Additional copies of plans and specifications may be obtained by the Contractor for the cost of reproduction.

### 7.0 PERMITS, LAWS, REGULATIONS, & RIGHTS OF ENTRY

- 7.1 The WVDEP-AML has obtained a Construction Storm Water General Permit for this project from WVDEP Division of Water and Waste Management (WVDEP DWWM). The registration for this reclamation project will be modified to include the Contractor as Co-Applicant #1, with the WVDEP-AML being Co-Applicant #2. As such, the Contractor shall assume responsibility for compliance with the terms and conditions of the permit including modifications and any future correspondence such as registration renewal invoices, inspection reports, and notices of violation shall be forwarded to the Contractor. Upon award of the contract, the Contractor shall complete a Co-Applicant #1 signature page and submit the completed form to WVDEP-AML prior to scheduling a Pre-Construction Conference.

Upon receipt of the completed form, WVDEP-AML will request the WVDEP DWWM to modify the existing NPDES registration for this project to make the Contractor the Co-Applicant #1 to the permit.



## ARTICLE II - GENERAL CONDITIONS

The WVDEP DWWM will notify the Contractor and WVDEP-AML when the successful transfer of registration under WV/NPDES Storm Water Construction General Permit (No.WV0115924) is completed. A Notice to Proceed will not be issued until the contractor signs the co-applicant form and submits to the Office of Abandoned Mine Lands.. Once the transfer has been completed, the WVDEP will continue to be responsible for any modification fees and annual renewal fees incurred up until the date of the final inspection of the project that occurs after completion of construction activities at the site. The Contractor shall be responsible for any and all costs associated with violations and fines assessed against the project that are a result of the Contractor's negligence, carelessness, or failure to install permanent controls as part of the work as scheduled.

The Contractor shall apply for a Notice of Termination (NOT) from WVDEP DWWM via the Construction Storm Water website <http://www.dep.wv.gov/Programs/stormwater/csw/Documents/Construction> upon completion of construction activities at the site. The NOT shall be issued by WVDEP DWWM upon completion of the project. The Contractor will continue to be bound by the terms and conditions of the permit until the NOT has been approved by WVDEP DWWM. Once the project is complete, the Contractor will still bear responsibility for the NPDES registration until a NOT is received from the WVDEP DWWM.

- 7.2 The Contractor shall comply with all laws, ordinances, rules, orders and regulations relating to the performance of the work, the protection of adjacent property, the maintaining of passageways, guard fences, or other protective facilities.
- 7.3 All applicable Federal and State laws and regulations, municipal ordinances, and the rules and regulations of all public authorities having jurisdiction over construction of the project shall apply to the contract throughout, and are incorporated herein by reference.
- 7.4 DEP shall be responsible for obtaining all construction rights of entry for the project unless otherwise provided for in the Construction Specifications.
- 7.5 The Contractor agrees to indemnify and hold harmless the DEP from all liability and/or damages resulting from the Contractor's use of property for which the Contractor was to obtain rights of entry for borrow, disposal, access or other purposes. Said indemnification shall include, but is not limited to, liability and damages resulting from the Contractor's failure to obtain any or not all the right of entry; failure to utilize appropriate language in the right of entry agreements; or failure to obtain the permission and signatures of all persons or entities holding a legal interest in the subject property(ies) covered by the rights of entry.
- 7.6 All right of entry agreements the Contractor obtains for borrow, disposal, access or other purposes for this project shall include a provision requiring the property owner to indemnify and hold harmless the DEP for the Contractor's actions and any injury or damages whatsoever resulting from the Contractor's use of the property.



## ARTICLE II - GENERAL CONDITIONS

### 8.0 SAFETY REQUIREMENTS

- 8.1 Particular attention is directed to the "West Virginia Safety Code for Building Construction" as published by the West Virginia Department of Labor. Observance of and compliance with said laws, regulations and codes shall be solely with and without qualification the responsibility of the Contractor.
- 8.2 The Contractor, subcontractors, other contractors and all employees and workers shall comply with the provisions of the Occupational Safety and Health Act 29 CFR 1926. The Contractor shall be held liable to DEP for any health and safety infractions, on the Contractor's part, which cause DEP to receive a citation and/or fine from any local, State or Federal agency. Actual costs involved will be paid by the Contractor to the satisfaction of DEP.

### 9.0 PROTECTION OF PERSONS & PROPERTY

- 9.1 The Contractor shall be responsible for initiating, maintaining, and supervising all safety precautions and programs in connection with the work.
- 9.2 Safety of Persons and Property: The Contractor shall take all reasonable precautions for the safety of, and shall provide all reasonable protection, preventing damage, injury, or loss to:
- (a) All employees on the work, and all other persons who may be affected thereby;
  - (b) All the work and all materials and equipment to be incorporated therein, whether in storage on or off the site, under the care, custody or control of the Contractor, or any of its subcontractors or their employees or subcontractors; and
  - (c) Other property on the site or adjacent thereto, including, but not limited to, paving, roadways, structures, utilities and permanent property boundaries, monuments or markers not designated for removal, or relocation, or replacement in the course of construction. Any damage to these items shall be repaired or replaced at the expense of the Contractor and to the satisfaction of DEP.

## ARTICLE II - GENERAL CONDITIONS

- 9.3 The Contractor shall give all notices and comply with all applicable laws, ordinances, rules, regulations, and lawful orders of any public authority, bearing on the safety of persons or property, or their protection from damage, injury, or loss.
- 9.4 The Contractor shall erect and maintain, as required by existing conditions and progress of the work, all reasonable and adequate safeguards for safety and protection. It shall post danger signs and provide other warnings as required against hazards and dangers to persons and property.
- 9.5 In case of an emergency which threatens injury, loss of life and/or damage to property, the Contractor will be permitted to act, without prior instruction from the Regional Engineer, in a diligent manner. It shall notify the Construction Supervisor immediately thereafter. Any claim for compensation by the Contractor due to such extra work shall be promptly submitted to the Construction Supervisor for verification and approval by the Regional Engineer.
- The amount of reimbursement claimed by the Contractor for work arising out of any emergency situation shall be determined by the Chief or his/her authorized representative.
- 9.6 The Contractor shall be responsible for the verification of existing utilities that may be affected by its work in the project area. It shall be held responsible for any damage to and for maintenance and protection of existing utilities and structures during the performance of the work.

### **10.0 INSURANCE & WORKER'S COMPENSATION**

#### **10.1 Contractor's and Subcontractor's Public Liability, Vehicle Liability and Property Damage Insurance.**

The Contractor shall maintain insurance as follows:

- (a) Contractor's Public Liability Insurance and Comprehensive Vehicle Liability Insurance shall be in an amount not less than \$2,000,000.00 for bodily injury and property damage for each occurrence and not less than \$2,000,000.00 aggregate. Additional named insured: Boone East Development Company, P.O. Box 271 Julian, WV 25529.

The required insurance must be written by a company or companies licensed to do business in West Virginia at the time the policy is issued and the policy must be countersigned by a licensed resident agent. Any property owner requiring additional insured shall be added to this policy.

- (b) Contractor shall either (1) require each of the subcontractors to procure and to maintain, during the life of its subcontract, subcontractor's Public Liability and Property Damage Insurance of the type and in the same amounts as specified in paragraph (a) above, or (2) insure the activities of its subcontractors in its own policy.

## ARTICLE II - GENERAL CONDITIONS

Contractor agrees to indemnify and hold harmless DEP from all liability for personal injury, including death resulting therefrom, and against all liability for property damage sustained by any person or persons, including persons employed by Contractor or subcontractors, which is caused in whole or in part by an act or omission, negligent or otherwise, of the Contractor, its agents, servants, or employees, and to assume the defense of any action brought by such persons to recover damages, and to pay all costs and expenses, including attorney's fees, incurred by DEP as result thereof.

Each party to the contract shall promptly notify the other of the assertion of any claim against which such party is held harmless pursuant to this Section, shall give such other party the opportunity to defend any such claim, and shall not settle any such claim without approval of the indemnifying party.

### 10.2 Proof of Carriage of Insurance.

The Contractor shall provide DEP, before work commences, with certificates issued by the insurance company or companies issuing the insurance policies required by this Section. The certificates shall show the type, amount, class of operations covered, effective dates, and dates of expiration of such policies. Such certificates shall provide that written notice shall be given to DEP prior to expiration, cancellation, or modification of any such policy, and shall contain substantially the following representation: "The insurance covered by this certificate will not be canceled, or materially modified or altered, except after ten (10) days written notice has been verified as received by the West Virginia Department of Environmental Protection".

### 10.3 Worker's Compensation Insurance.

All employees of the Contractor, and of subcontractors engaged in the work of this contract, shall be covered by West Virginia Worker's Compensation Insurance. Certificates shall be provided to DEP by the Contractor and subcontractors showing compliance with the Worker's Compensation Laws of West Virginia.

## 11.0 LABOR LAWS, ORDINANCES, WAGES, AND OTHER CONDITIONS

11.1 The Contractor shall obey and abide by all laws of the State of West Virginia, particularly with respect to the carrying out of public improvements.

The Contractor shall not pay less than the established prevailing minimum wage rate for each particular class of employment in the county in which the work is being performed. This rate shall include and and all time an employee is on the project.



## ARTICLE II - GENERAL CONDITIONS

11.2 During the performance of this contract, the Contractor agrees as follows:

- (a) The Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, or national origin. The Contractor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, creed, color, or national origin. Such action shall include, but not be limited to, the following: employment, upgrading, demotion or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship.  
Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notice, to be provided by the contracting officer, setting forth the provisions of this nondiscrimination clause.
- (b) Contractor will, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, creed, color or national origin.
- (c) Contractor will send to each labor union or representative of workers with which it has a collective bargaining agreement or other contract understanding, a notice, to be provided by the agency contracting officer, advising the labor union or worker's representative of the Contractor's commitments under Section 202 of Presidential Executive Order #11246 of September 24, 1965 (hereinafter "Executive Order #11246"), as amended by Presidential Executive Order #11375 and supplemented by U.S. Department of Labor regulations 41 CFR Part 60 and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- (d) Contractor will comply with all provisions of Executive Order #11246, and with all of the applicable rules, regulations, and relevant orders of the U.S. Secretary of Labor (hereinafter "Secretary of Labor").
- (e) Contractor will furnish all information and reports required by Executive Order #11246, and by the applicable rules, regulations and orders of the Secretary of Labor, or pursuant thereto, and will permit access to its books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations and orders. These provisions shall also apply to DEP or employees of the Federal Government or their designated representatives for the purpose of making audits, examinations, excerpts, or transcriptions.
- (f) In the event of the Contractor's noncompliance with these nondiscrimination clauses, this contract may be canceled, terminated, or suspended, in whole or in part, and the Contractor may be declared ineligible for further government contracts in accordance with procedures authorized in Executive Order #11246, and such other sanctions may be imposed and remedies invoked as provided in Executive Order #11246, or by rules, regulations, or orders of the Secretary of Labor, or as otherwise provided by law.

## ARTICLE II - GENERAL CONDITIONS

- (g) The Contractor will include the provisions of these paragraphs (a) through (g) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order #11246, so that such provisions will be binding upon each subcontractor or vendor. The Contractor will take such action with respect to any subcontractor or purchase order as the contracting agency may direct as a means of enforcing such provisions, including sanctions for noncompliance: Provided, however, that in the event the Contractor becomes involved in, or is threatened with litigation with a subcontractor or vendor as a result of such direction by the contracting agency, the Contractor may request DEP to enter into such litigation to protect the interests of DEP.
- (h) Copeland "Anti-Kickback" Act. Contractor or Subcontractor shall comply with the Copeland "Anti-Kickback" Act (18 USC 874) as supplemented in U.S. Department of Labor regulations (29 CFR Part 3). Said Act provides that each Contractor or subcontractor shall be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public works, to give up any part of the compensation to which it is otherwise entitled. The Contractor shall report all suspected or reported violations to DEP.
- (i) Clean Air & Water Acts. Should the amount of this contract exceed one-hundred thousand dollars (\$100,000.00), compliance will be required with all applicable standards, orders, or requirements issued under Section 306 of the Clean Air Act (42 USC 1857[h]), Section 508 of the Clean Water Act (33 USC 1368), Presidential Executive Order #11738, and Federal Environmental Protection Agency regulations (40 CFR Part 15), which prohibit the use under non-exempt Federal contracts, grants or loans of facilities included on the EPA List of Violating Facilities. Contractor shall report violations to DEP and to the U.S. EPA Assistant Administrator for Enforcement (EN-329).
- (j) Energy Policy & Conservation Act. The Contractor shall comply with mandatory standards and policies relating to energy efficiency which are contained in the State energy conservation plan issued in compliance with the Energy Policy and Conservation Act, Public Law 94-163.
- (k) Access to Records. DEP, the U.S. Department of Interior's Office of Surface Mining Reclamation & Enforcement, and the U.S. Comptroller General or their duly authorized representatives shall have access to any books, papers, and records of the Contractor which are directly pertinent to that specific contract, for the purpose of making audits, examinations, excerpts, and transcriptions.
- (l) Maintenance of Records. The Contractor shall maintain all required records for three (3) years after DEP processes final payments and all other pending matters are closed.
- (m) Termination of Contract by DEP. This contract may be cancelled in whole or in part in writing by the Director of Purchasing, without prejudice to any other right or remedy it may have, provided that the contractor is given not less than thirty (30) calendar days written notice, (delivered by certified mail, return receipt requested) of intent to terminate.

## ARTICLE II - GENERAL CONDITIONS

- (n) **Legal Remedies** Unless otherwise provided by law or elsewhere in this contract, all claims, counter-claims, disputes and other matters in question between DEP and the Contractor arising out of, or relating to, this contract or the breach of it will be decided by arbitration if the parties mutually agree, or in a court of competent jurisdiction within the State of West Virginia.

### 11.3 **Wages**

Attention is called to the prevailing rates of wages to be paid for labor on public improvements in Boone County, West Virginia, as determined by the West Virginia Department of Labor. A copy of wage rates shall be posted in a conspicuous location on the job site. Copies of the wage rates are included herein, however, it is the responsibility of the Contractor to pay the wage rate in effect when the project was bid. The Contractor is to maintain and have available for inspection by DEP, upon request, certified copies of its payrolls.

The contractor/subcontractors shall pay the higher of the U.S. Department of Labor Davis-Bacon Act or the WV Prevailing wage rate as established for various county, pursuant to West Virginia Code 21-5A, Et, Seq. and 42CSR7 Rules & Regulations for the WV Prevailing Wage Act. For prevailing wage rates, please refer to <http://www.sos.wv.gov>

### 12.0 **SUBCONTRACTORS**

- 12.1 Unless otherwise required by the contract documents, the Contractor, as soon as practicable after award of the contract, shall furnish DEP in writing the names of subcontractors (including those who are to furnish materials or equipment fabricated to special design) proposed for performing portions of the work.
- 12.2 DEP reserves the right to disapprove any proposed subcontractor whose record of performance does not establish its experience, competence, and financial ability to perform the work for which it is proposed. Nothing contained in the contract documents shall create any contractual relation between any subcontractor and DEP.

### 13.0 **TIME**

- 13.1 The date of commencement of work is the date established in a written "Notice to Proceed" issued by DEP to the Contractor. The date of completion shall be the date that DEP finds the work acceptable under the contract documents and the contract fully performed.



## ARTICLE II – GENERAL CONDITIONS

### 13.2 Delays & Extensions of Time.

- (d) It is agreed that if the Contractor should be unavoidably delayed in fulfilling its obligations under this contract by acts of Providence or general strikes, or by Court injunctions, or by stopping of the work by DEP because of any Contractor toward final completion of the work hereunder, DEP may require the Contractor to prepare an itemized estimate of the amount of work performed, and material and equipment stored under the contract since the date of the last preceding estimate and Application for Payment. DEP may request that the Contractor submit such estimate along with supporting documentation in the form of certified payrolls, material invoices, weight slips, and Applications for Payment. Contractor is to maintain and have available such records for inspection by DEP upon request.

### 13.3 Progress Schedule.

The Contractor, immediately after being awarded the contract, shall prepare and submit, for DEP's information, an estimated progress schedule for the work. Such progress schedule shall be related to the entire project to the extent required by the contract documents, and shall provide for expeditious and practicable execution dates of the various stages of construction and may be revised as required by conditions of work, subject to DEP's approval.

## 14.0 PAYMENTS & COMPLETION

### 14.1 Contract Sum.

The contract sum as stated in the Contractor's executed Contract Acceptance Form, including any authorized adjustment(s) thereto, is the total amount payable by DEP to the Contractor for the performance of the work under the contract documents.

## ARTICLE II – GENERAL CONDITIONS

### 14.2 Schedule of Values.

Before submitting its first Application for Payment, the Contractor shall submit to DEP a schedule of values allocated to the various portions of the work, prepared in such form and supported by such data to substantiate its accuracy, as DEP may require. This schedule shall be used only as a basis for the Contractor's Applications for Payment.

### 14.3 Progress Estimates, Applications for Payment.

- (d) On the fifteenth (15<sup>th</sup>) and thirtieth (30<sup>th</sup>) day of each month during which progress has been made on the work under the contract by the Contractor toward final completion of the work hereunder, DEP may require the Contractor to prepare an itemized estimate of the amount of work performed since the date of the last preceding estimate and Application for Payment. DEP may request that the Contractor submit such estimate along with supporting documentation in the form of certified payrolls (not to include social security numbers), material invoices, weight slips, and Applications for Payment. Contractor is to maintain and have available such records for inspection by DEP upon request.
- (b) Upon approval by DEP of the Application and Certificate for Payment, DEP shall, as soon thereafter as practicable, process for the Contractor as a progress payment a sum equal to the contract value of the work performed since the last preceding estimate and Application for Payment, in accordance with Paragraphs 14.4 and 14.5 of this Section, less the aggregate of previous payments.
- © No Certificate for a progress payment, nor any progress payment, shall constitute acceptance or be deemed or construed as acceptance of any part of the work not in accordance with the contract documents.
- (d) The Contractor warrants and guarantees that title to all work, materials, and equipment covered by an Application for Payment, whether incorporated in the project or not, will pass to DEP upon the receipt of such payment by the Contractor, free and clear of all liens, claims, security interests or encumbrances, and that no work, materials, or equipment covered by an Application for Payment will have been acquired by the Contractor or by any other person performing the work at the site or furnishing materials and equipment for the project, subject to an agreement under which an interest therein or an encumbrance thereon is retained by the Contractor or otherwise imposed by the Contractor or such other person.

## ARTICLE II – GENERAL CONDITIONS

### 14.4 Payments Withheld.

The Regional Engineer or his representative may decline to approve an estimate or Application for Payment, to the extent necessary to protect DEP from loss because of:

- (b) Unsatisfactory, unrepresentative, and unverified amounts and items included in progress estimates of Paragraph 14.3(a) above.
- (ii) Unfulfilled provisions of Paragraphs 14.3(d) above.
- (iii) Defective work not remedied.
- (iv) Unsatisfactory performance of the work by the Contractor.
- (v) Failure of the Contractor to make payments properly to subcontractors, or for labor, materials, or equipment.
- (vi) Reasonable doubt that the remaining work can be completed for the unpaid balance of the contract sum.
- (vii) Reasonable indication that the work will not be completed within the contract time for completion.
- (viii) Third party claims filed, or reasonable evidence indicating probable filing of such claims.
- (ix) Damage to another contractor.

When the above grounds under 14.4 (i)-(ix) are removed, payment shall be approved for the amounts that were withheld because of them.

### 14.5 Final Completion & Final Payment.

- (b) Upon notice from the Contractor that the work is ready for final inspection, the Construction Supervisor will promptly make such inspection. If the Construction Supervisor upon his/her inspection finds the work acceptable under the contract documents and the contract fully performed, the Contractor shall submit a Final Estimate Application and Certificate for Payment to DEP for processing. Also, final quantity calculations shall be submitted to DEP by the Contractor prior to final inspection conference.
- (b) Final payment to the Contractor will be processed by DEP upon fulfillment of the provisions of the contract documents and the conditions thereof.

## ARTICLE II - GENERAL CONDITIONS

- (c) **The processing of final payment and the processing of payment of retained percentage shall constitute a waiver of all claims by DEP except those arising from:**
  - (i) **Unsettled liens.**
  - (ii) **Faulty or defective work appearing after final completion.**
  - (iii) **Failure of the work to comply with requirements of the contract documents.**
  - (iv) **Terms of any special warranties required by the contract documents.**
  - (v) **Affidavate of Payment**
- (d) **The acceptance of final payment shall constitute a waiver of all claims by the Contractor except those previously made in writing and identified by the Contractor as unsettled at the time of the final Application for Payment. No payment, however, final or otherwise, shall operate to release the Contractor or its sureties from any obligation under the contract documents, or the Performance Bond, and the Labor and Material Payment Bond. (See 15.1 below.)**

### **14.6 Application for Payment Forms.**

**Bound herewith on the preceeding pages are sample Application and Certificate for Payment forms which the Contractor shall use in the submittal of progress estimate Applications for Payment to DEP.**



**CONTINUATION SHEET OF APPLICATION AND CERTIFICATE FOR PAYMENT**

Project Name: \_\_\_\_\_ Application No: \_\_\_\_\_

Page \_\_\_\_ of \_\_\_\_ pages

BID SCHEDULE PER CONTRACT				UNITS THIS APPLICATION	TOTAL COMPLETED AND STORED TO DATE	
ITEM # A	DESCRIPTION B	UNITS C	UNIT BID PRICE D	UNITS E	UNITS F	COST G=(DxF)
<b>SUBTOTAL OR TOTAL</b>						

## ARTICLE II - GENERAL CONDITIONS

### 15.0 SURETY BONDS

15.1 The Contractor shall provide and deliver to DEP's Buyer at the Purchasing Division of the Department of Administration at the time of execution of the contract, and prior to the performance of the work, satisfactory surety bonds in an amount of not less than one hundred percent (100%) of the contract sum which shall include a Performance Bond and Labor and Material Payment. An increase in the Surety Bond will be required to equal any increases to the contract amount created by a change order.

Bond, with sureties acceptable to DEP's Buyer, for the faithful fulfillment of the contract within the time specified. Said bonds shall also save and hold harmless DEP from all liens and claims arising out of the work. The Contractor shall pay for the bonds.

15.2 In the event that the surety on any contract or payment bond given by the Contractor becomes insolvent, or is placed in the hands of a receiver, or has its right to do business in this State revoked as provided by law, the Cabinet Secretary may at his/her election, withhold payment or any estimate until the Contractor shall give a good and sufficient bond in lieu of the bond so executed by such surety.

15.3 Attorneys-in-Fact who execute surety bonds issued pursuant to this Section must provide with each such bond a certified and properly executed Power of Attorney.

15.4 All performance bonds shall be in effect throughout the one-year guarantee period set out in Section 5.0. Bonds will be released upon completion of the guarantee period and acceptance of the project by DEP.

### 16.0 CHANGES IN THE WORK

#### 16.1 Change Orders

(a) DEP, without invalidating the contract, may order or the Contractor may request changes in the work within the general scope of the contract consisting of additions, deletions, or other revisions, the contract sum and the contract time being adjusted accordingly. All such changes in the work shall be authorized by change order, and shall be executed under the applicable conditions of the contract documents.

(b) A change order is a written order to the Contractor, properly executed as to form, issued after the execution of the contract, authorizing a change in the work or an adjustment in the contract sum or contract time. The contract sum or contract time may be changed only by a change order. A change order issued to the Contractor indicates its agreement therewith, including the adjustment in the contract sum or contract time set forth therein.



## ARTICLE II - GENERAL CONDITIONS

- (c) **The cost or credit to DEP resulting from a change in the work shall be determined in one or both of the following ways:**
  - (i) **By mutual acceptance of a lump sum properly itemized.**
  - (ii) **By unit prices stated in the contract documents or subsequently agreed upon.**
- (d) **If none of the methods set forth in 16.1(c) above is agreed upon, or the work to be performed is agreed by DEP and Contractor to be of such nature that it cannot be estimated in advance with sufficient exactness for mutual agreement, then DEP may direct the Contractor to perform the work by change order in accordance with the following provisions, and the Contractor shall promptly proceed with the work:**
  - (i) **The work shall then be performed for an amount equal to the actual and necessary net cost to the Contractor for material and labor cost necessarily used therein, including all taxes and delivery costs for materials, all required extra costs on labor, plus cost for superintendents, power, use of tools, equipment, plant, plus the Contractor's normal charge under the contract for overhead and profit. The Contractor shall keep and present to DEP for inclusion in the change order complete itemized accounting for all materials, complete identified time and payment records for all employees, and workmen actually performing the work covered by the change order, the cost accounting of work performed by subcontractors for work covered by the change order. DEP reserves the right to require verifications of all costs covered under the change order.**
  - (ii) **The amount of credit to be allowed by the Contractor to DEP for any deletion or change which results in a net decrease in the contract sum will be the actual net cost. When both additions and credits covering related work or substitutions are involved in one change, the allowance for overhead and profit shall be figured only on the basis of the increase, if any, with respect to that change.**

**16.2 The Chief is the only individual who can execute a change order committing DEP to the expenditure of public funds. No person other than the Chief or his/her authorized representative can make any changes to the terms, conditions, contract clauses, or other stipulations of this contract.**

**The Contractor shall not accept any instructions issued by any person other than the Chief or his/her authorized representative regarding changes in the work under the contract which affect the contract sum and/or contract time. No information, other than that which may be contained in an authorized modification to this contract, duly issued by the Chief or his/her authorized representative, which may be received from any person employed by DEP or otherwise, shall be considered grounds for deviation from any stipulation of the contract.**



## ARTICLE II - GENERAL CONDITIONS

### 16.3 Minor Changes in the Work.

Notwithstanding the requirements of Section 16.2 above, the Regional Engineer or his/her authorized representative shall have authority to order minor changes in the work not involving an adjustment in the contract sum or an extension of the contract time and not inconsistent with the intent of the contract documents. Such changes may be affected by field order or by other written order. Such changes shall be binding on DEP and the Contractor. The Contractor shall carry out such written orders promptly.

### 16.4 Omissions.

DEP may omit any item or items in the contract, provided that the notice of intent to omit such item or items is given to the Contractor before any material has been purchased or labor involved has been performed, and such omission shall not constitute grounds of any claim for damages or loss of anticipated profits. DEP may omit any item or items shown the estimate, at any time, by agreeing to compensate the Contractor for the reasonable expense already incurred and to take over at actual cost any unused material purchased in good faith for use for the item or items omitted.

## 17.0 UNCOVERING & CORRECTION OF WORK

### 17.1 Uncovering of Work.

- (a) If any work should be covered contrary to the request of DEP, it must, if required by DEP, be uncovered for its observation and be replaced at the Contractor's expense.
- (b) If any other work has been covered which DEP has not specifically requested to observe prior to being covered, DEP may request to see such work and it shall be uncovered by the Contractor. If such work is found to be in accordance with the contract documents, the cost of uncovering and replacement shall, by appropriate change order, be charged to DEP. If such work is found not to be in accordance with the contract documents, the Contractor shall pay such costs unless it is found that such condition was caused by a separate contractor employed by DEP and in that event DEP shall be responsible for the payment of such costs.

### 17.2 Correction of Work.

The Contractor shall promptly correct all work rejected by DEP as defective or as failing to conform to the contract documents whether observed before or after final completion and whether or not fabricated, installed or completed. The Contractor shall bear all cost of correcting such rejected work. All such defective or

## ARTICLE II - GENERAL CONDITIONS

non-conforming work shall be removed from the site if necessary, and the work shall be corrected to comply with the contract documents at no cost to DEP. If the Contractor fails to correct such defective or non-conforming work, DEP may correct it in accordance with Section 17.3 below or Section 11.2(m) of these General Conditions.

### 17.3 Acceptance of Non-Conforming Work.

If DEP prefers to accept non-conforming work, it may do so instead of requiring its removal and correction, in which case a change order will be issued to reflect an appropriate reduction in the contract sum, or, if the amount is determined after final payment, it shall be paid by the Contractor.

### 18.0 ASSIGNMENT OF CONTRACT

Contractor shall not assign or transfer this contract or sublet it as a whole without having first obtained the written consent of DEP to do so; and it is likewise agreed that the Contractor shall not assign legally or equitably any of the moneys payable to it under the contract, or its claim thereto, without having first obtained the written consent of DEP to do so.



**Part D.**

Contractor's Business Name: \_\_\_\_\_

If the current Entity OFT information for your business is incomplete or incorrect in AVS, or if there is no information in AVS for your business, you must provide all of the following information as it applies to your business. Please make as many copies of this page as you require.

- Every officer (President, Vice President, Secretary, Treasurer, etc.);
- All Directors;
- All persons performing a function similar to a Director;
- Every person or business that owns 10% or more of the voting stock in your business;
- Every partner, if your business is a partnership;
- Every member and manager, if your business is a limited liability company; and
- Any other person(s) who has the ability to determine the manner in which the AML reclamation project is being conducted.

Name	_____	Position/Title	_____
Address	_____	Telephone #	_____
	_____	% of Ownership	_____
Begin Date:	_____	Ending Date:	_____

Name	_____	Position/Title	_____
Address	_____	Telephone #	_____
	_____	% of Ownership	_____
Begin Date:	_____	Ending Date:	_____

Name	_____	Position/Title	_____
Address	_____	Telephone #	_____
	_____	% of Ownership	_____
Begin Date:	_____	Ending Date:	_____

Name	_____	Position/Title	_____
Address	_____	Telephone #	_____
	_____	% of Ownership	_____
Begin Date:	_____	Ending Date:	_____

**PAPERWORK REDUCTION STATEMENT**

The Paperwork Reduction Act of 1995 (44 U.S.C. 3501) requires us to inform you that: Federal Agencies may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number. This information is necessary for all successful bidders prior to the distribution of AML funds, and is required to obtain a benefit.

Public reporting burden for this form is estimated to range from 15 minutes to 1 hour, with an average of 22 minutes per response, including time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. You may direct comments regarding the burden estimate or any other aspect of this form to the Information Collection Clearance Officer, Office of Surface Mining Reclamation and Enforcement, Room 202 SIB, Constitution Ave., NW, Washington, D.C. 20240.

**ARTICLE III - GENERAL REQUIREMENTS**

## ARTICLE III - GENERAL REQUIREMENTS

### Sections Included:

- 1.0 Summary of the Work
- 2.0 Quality Standards, Approvals
- 3.0 Superintendents, Coordination
- 4.0 Project Meetings
- 5.0 Authority & Duties of Inspectors
- 6.0 Shop Drawings, Product Data, Samples
- 7.0 Measurements, Manufacturer's Directions
- 8.0 Lines, Levels, Grades, Layout
- 9.0 Documents, Shop Drawings, Etc., at Site
- 10.0 Storage of Materials
- 11.0 Protection of Work, Damages
- 12.0 Temporary Facilities
- 13.0 Construction Sign
- 14.0 Cleaning and Final Clean-Up
- 15.0 Testing
- 16.0 Project Completion - Certificates

## ARTICLE III - GENERAL REQUIREMENTS

### 1.0 SUMMARY OF THE WORK

**This Article briefly outlines and describes the work to be performed and is not intended to limit the faithful execution of the contract documents.**

- 1.1 The scope of the work for this project, without attempting to restrict or limit the contractor's responsibility, consists of furnishing all plant, labor, materials, and equipment to construct abandoned mine drainage control structures described in the drawings and these specifications. The work shall include, but not be limited to, the following:**

**Providing sediment control, installing construction entrance, install pipe, construct channels, dewater deepmines by horizontal boring, revegetate disturbed aread, repair access roads.**

## ARTICLE III - GENERAL REQUIREMENTS

### 2.0 QUALITY STANDARDS, APPROVALS

- 2.1 Notwithstanding reference in the specifications or on the drawings to any article, item, product, material, equipment, or system by name, brand, make, or manufacturer, such reference shall be intended and interpreted as establishing a standard of quality, and shall not be taken, regarded, or construed as limiting competition.
- 2.2 Any article, item, product, material, equipment, or system which will perform adequately and satisfactorily the duties imposed by the general design will be considered equally acceptable to that specified or referenced, providing the article, item, product, material, equipment, or system so proposed is equal in quality, substance, design, manufacture, function and performance as that specified or referenced, and adjudged and determined to be so in the opinion of the Construction Supervisor and is approved by him/her. The approval of the Regional Engineer is required before purchase and installation.
- 2.3 Approvals.

Where the term "of approved manufacture" appears in the specifications, or an "approved" or "approved as equal" article or item is referred to, it shall mean that the article, item, workmanship, or material must meet the approval of the Construction Supervisor.

### 3.0 SUPERINTENDENTS, COORDINATION

#### 3.1 Superintendents.

The Contractor shall employ and keep a competent superintendent and assistants who shall be capable of effective communication as required on the job at all times and who shall give efficient supervision to the work, using his/her best skill and attention, and shall have knowledge and control of all trades. The superintendent shall be acceptable to the Construction Supervisor and shall not be changed without the Construction Supervisor's knowledge and consent. The Contractor also shall see that each respective sub-contractor provides a competent foreman for each trade.

#### 3.2 Coordination.

The Contractor and each sub-contractor shall coordinate the work and operations and shall cooperate with and assist each other on the job for the successful execution of the work within trade jurisdictional rulings. Each shall study all drawings and specifications and shall perform all work which properly comes under jurisdiction of the trade he/she represents.

### 4.0 PROJECT MEETINGS AND CONFERENCES

- 4.1 The following meetings shall be scheduled and held prior to commencement of the project and during execution of the work. DEP will schedule such



### ARTICLE III - GENERAL REQUIREMENTS

meetings and advise all parties concerned by written notice of the date, time, and location of such meetings.

- (a) **Pre-Bid Conference.** Conference with Engineer, bidders and appropriate DEP personnel as necessary, and others directly concerned for explanation of bidding and contract documents, project site familiarization as required, and for answering questions pertinent to the project. **Attendance by bidders is mandatory in order to be eligible to bid on the project.**

A date and time will be set for the on-site **mandatory** Prebid Conference. All interested parties are required to attend this meeting. Failure to attend the mandatory pre-bid shall result in disqualification of the bid. No one person may represent more than one bidder.

An attendance sheet will be made available for all potential bidders to complete. This will serve as the official document verifying attendance at the mandatory pre-bid. Failure to provide your company and representative name on the attendance sheet will result in disqualification of the bid. The State will not accept any other documentation to verify attendance. The bidder is responsible for ensuring they have completed the information required on the attendance sheet. The Purchasing Division and the state agency will not assume any responsibility for a bidder's failure to complete the pre-bid attendance sheet. In addition, we request that all potential bidders include their e-mail address and fax number.

All potential bidders are requested to arrive prior to the starting time for the pre-bid. Bidders who arrive after the pre-bid conference has ended will not be permitted to sign the attendance sheet or bid on the project work.

- (b) **Pre-Construction Conference.** Conference with Engineer, appropriate DEP personnel, Contractor, Sub-Contractors, and others directly concerned, after award of the contract and prior to commencement of construction, for discussion of the project, contract documents, scheduling, and for resolving questions concerning project execution and administration as required.

- (c) **Project Meetings.** Meetings shall be held at periodic intervals throughout the construction contract period for discussion of matters pertinent to the execution and administration of the project. The Regional Engineer, Construction Engineer, Construction Supervisor, Inspector, Contractor and/or its Superintendent, Subcontractors, Project Foremen, as required, and others directly concerned, as necessary, shall attend the meetings.

## **5.0 AUTHORITY & DUTIES OF INSPECTORS**

- 5.1** The Inspector, as the Regional Engineer's authorized representative, is authorized to make minor field changes to the plans and specifications that do not involve an increase or decrease in the contract sum or an increase or decrease in the contract time. The Inspector shall be authorized to inspect all work done, all material furnished, payroll records of personnel, material invoices and relevant data and records of the work, and the preparation, fabrication, or manufacture of the materials to be used. The Inspector is not authorized to revoke, alter, or waive any requirements of the plans and specifications that result in an increase or decrease in the amount of compensation due the Contractor or an increase or decrease in the contract time. The Inspector is authorized to call to the attention of the Contractor any failure of the work or materials to conform to the plans and specifications. The Inspector shall have the authority to reject materials or suspend the work until any questions at issue can be referred to and decided by the Regional Engineer.
- 5.2** The Inspector shall in no case act as foreman or perform other duties for the Contractor, nor interfere with the management of the work by the Contractor. Any advice which the Inspector may give the Contractor shall in no way be construed as binding the Regional Engineer in any way, or releasing the Contractor from fulfilling all of the terms of the contract.
- 5.3** If a problem arises that that the contractor will not correct and the Contractor refuses to suspend operations on verbal order, the Inspector shall issue a written order giving the reason for ordering the work to stop. After placing the order in the hands of the person in charge, the Inspector shall immediately leave the job, and the Contractor shall cease all operations.

## ARTICLE III - GENERAL REQUIREMENTS

### 6.0 SHOP DRAWINGS, PRODUCT DATA, SAMPLES

#### 6.1 Definitions.

- (a) "Shop drawings" are drawings, diagrams, schedules, and other data, prepared for the project by the Contractor, Sub-contractor, manufacturer, or supplier, to illustrate and/or install some portion of the work.
- (b) "Product data" are illustrative data, brochures, schedules, catalog cuts, charts, informative material and specifications to illustrate materials, articles, items, or products for use in some portion of the work.
- (c) "Samples" are physical examples which show and illustrate materials, finishes, equipment or workmanship of products proposed for use in some portion of the work.

#### 6.2 Submittals.

- (a) The Contractor shall review, approve, and submit to the Regional Engineer with reasonable promptness, and in such sequence to cause no delay in the work, all shop drawings, product data, and samples required by the contract documents.
- (b) No shop drawings, product data, or samples shall be submitted to the Regional Engineer except by the Contractor, who shall, before submission, verify all materials, check all details, measurements, verify all field measurements and field construction conditions, and other job coordination requirements. Upon review, check, and approval by the Contractor, the Contractor shall place its stamp of approval thereon before submitting to the Regional Engineer.
- (c) The Contractor shall not be relieved of responsibility for any deviation from the requirements of the contract documents by the Regional Engineer's approval of shop drawings, product data, or samples, nor shall it be relieved of responsibility for errors or omissions therein.
- (d) Shop drawings, product data, and samples shall be submitted in sufficient number for all approvals, with a minimum of two (2) copies or samples being retained by the Regional Engineer, and a number of copies and samples being retained by the Contractor as required for the execution of its work.

## ARTICLE III - GENERAL REQUIREMENTS

- (e) No portion of the work requiring submission of a shop drawing, product data, or sample shall be commenced until the submittal has been approved by the Regional Engineer. All such portions of the work shall be in accordance with approved submittals.
- (f) Shop drawings, product data, and samples shall be submitted for work, systems, articles, items, and equipment as specified. Other additional shop drawings, product data, and samples as may be requested for the work by the Regional Engineer shall be submitted to him/her for approval.

### 7.0 MEASUREMENTS, MANUFACTURER'S DIRECTIONS

#### 7.1 Measurements.

Before ordering any material, product, article, or doing any work, the Contractor shall take all necessary measurements at the project and shall be responsible for the correctness of same. No extra charge or compensation will be allowed on account of differences between actual dimensions and the dimensions indicated on the drawings. The Regional Engineer shall be notified of any differences found and work shall not proceed thereon until the Regional Engineer has rendered a decision.

#### 7.2 Manufacturers' Directions.

All manufactured articles, items, products, material, and equipment shall be applied, installed, connected, erected, used, cleaned, conditioned and put into operation or use as directed by the manufacturer's printed instructions, unless specified otherwise herein. The Contractor shall be responsible for obtaining all such instructions.

#### 7.3 Measurement of Quantities.

The Contractor shall be responsible for providing all necessary volumetric and weight measurement equipment necessary to measure quantities accurately for payment of contract unit items, and said equipment shall be subject to the Regional Engineer's approval. Volume and weight measurements shall be submitted to the Regional Engineer for approval.

### 8.0 LINES, LEVELS, GRADES, LAYOUT

#### 8.1 Lines, Levels, Grades.

- (a) Control points have been established in the field and are shown on the plans whereby the Contractor can properly control the work contracted for under these specifications. Such stakes and markings which the Engineer may have set for either his/her own guidance shall be scrupulously preserved by the Contractor, or its employees.

## ARTICLE III - GENERAL REQUIREMENTS

If any action by the Contractor should result in the destruction of such stakes or markings, an amount equal to the cost of replacing same may be deducted from subsequent estimates due the Contractor at the discretion of the Construction Supervisor. The Contractor shall satisfy itself as to the accuracy of all measurements before constructing any permanent structure and shall not take advantage of any errors which may have been made in laying out the work. Should any discrepancies become evident between the plans and the Contractor's field survey, the Contractor shall immediately notify the Inspector. If these discrepancies will create a change in any item in the Contractor's accepted final bid, the DEP reserves the right to re-design or negotiate. Should the Contractor fail to make notification of these discrepancies, DEP will not be held liable for any changes in the original quantities.

- (b) The Contractor shall make all field measurements necessary for its work and shall be responsible for the accuracy of all dimensions, lines, levels, and grades. If a survey is required, it shall be performed at the expense of the Contractor. All survey work shall be performed by a West Virginia Licensed Land Surveyor who shall certify as to the accuracy of the survey to DEP.

### 9.0 DOCUMENTS, SHOP DRAWINGS, ETC., AT THE SITE

- 9.1 The Contractor shall maintain at the project site for DEP one (1) record copy of all drawings, specifications, addenda, change orders, and other modifications, in good order, marked currently to record all changes made during construction, and all approved shop drawings, product data, and samples, properly filed and referenced. All such documents and samples shall be delivered to the Construction Supervisor upon completion of the work.
- 9.2 The Contractor shall furnish the Inspector in writing two (2) sets of daily reports showing all personnel (by classification), equipment, and tools engaged in the work, for use in accounting records.
- 9.3 The Contractor shall be responsible for submitting a daily activity summary which shall be used to report progress of the various construction activities performed at the subject site. The summary report shall be submitted to the Inspector on a weekly basis on the prescribed forms. Processing invoices may be delayed if summary reports are not submitted.

### 10.0 STORAGE OF MATERIALS

- 10.1 The Contractor, under and with the approval, supervision, and direction of DEP, shall assume full charge of the area or areas of the project premises allocated for the storage of materials and equipment as required, allocating the necessary site space to any sub-contractor(s) for storage sheds and space for the storage of materials and equipment. Such arrangement of storage facilities

## ARTICLE III - GENERAL REQUIREMENTS

shall be orderly, convenient, shall not obstruct movement on the site, the work of others, or construction operations. All storage sheds, enclosures, and facilities shall fully protect the stored materials. The Contractor shall arrange with appropriate landowner(s) for any storage areas located outside of the project limits and such storage areas shall also be subject to DEP's approval.

- 10.2 All materials subject to damage by moisture, water, or weather shall be fully protected. All flammable, toxic, and explosive materials shall be safely stored in conformity with applicable safety requirements of State and Federal regulations and safety standards of the National Fire Protection Association.

### 11.0 PROTECTION OF WORK; DAMAGES

#### 11.1 Protection and Replacement of Work.

- (a) The Contractor shall protect its work from damage of any kind until completion of construction. Each contractor or sub-contractor shall adequately protect all preceding work from damage caused by it or its work. Should any part of the construction be subject to freezing or exposure to the elements, the same shall be fully protected to prevent damage.
- (b) The Contractor and each sub-contractor shall provide protection against weather, frost, freezing, storms, and heat, to maintain all work, materials, installations, and equipment safe from injury and damage. The Contractor shall provide temporary covering and closures in the construction as required to protect it from damage by weather, until permanent construction provides such protection.
- (c) Damaged or defective work must be replaced; all other work injured or damaged in the replacing of such work or in any way incidental thereto must be brought back to its original condition or replaced by the Contractor performing the work, without additional cost to DEP.

#### 11.2 Damages to Existing Work.

All masonry damage, glass breakage, and other damage caused to existing buildings and appurtenances by the Contractor or by other contractors in the performance of work shall be properly replaced or repaired at the option of DEP, without additional cost to DEP.

### 12.0 TEMPORARY FACILITIES

#### 12.1 Utilities

- (a) General. All concerned with providing temporary utilities for use on the project are advised to determine locations of sources of supply and the conditions under which services can be brought to points of use on the site.



### ARTICLE III - GENERAL REQUIREMENTS

- (b) **Drinking Water.** The Contractor shall arrange for drinking water and containers to be provided on the site.
- (c) **Utility Connections.** The Contractor is to furnish power, gas, compressed air and any other utilities required for its own use during construction. The Contractor shall remove all temporary wiring, switches, lights, piping and connections to service facilities used during construction. Such connections shall not be made without approval of the Inspector.
- (d) **Temporary Supports.** The Contractor shall provide such temporary supports as may be required during construction, including those necessary to ensure the stability of the proposed excavation.
- (e) **Equipment.** The Contractor shall furnish all special apparatuses, welding machines, air compressors, hoisting equipment, tools, implements, cartage, scaffolding, ladders, planks, acetylene gas, oxygen gas, expendable materials, temporary light and heat, construction materials, shims and all other materials that may be required for the proper execution of the work.
- (f) **Temporary Buildings.** The Contractor will furnish, place, and equip, at its own expense, and as it deems necessary, any portable construction building(s) such as a trailer, storage sheds or chemical sanitary facilities. These portable facilities must be within the designated project limits; otherwise, the Contractor is solely responsible for making necessary arrangements with the proper landowner when the buildings are set up outside of the project limits. The type and number of buildings are subject to the approval of the Inspector. All written instructions, orders, and other communication delivered to the temporary construction office set up on the site shall be considered as having been delivered to the Contractor itself. The Contractor shall provide and pay for its own fire protection, watchman, temporary utility hookups, etc. The Contractor will promptly remove from the project any office facilities, equipment or materials when so instructed by the Inspector.
- (g) **Sanitation Facilities.** The Contractor shall provide and pay for adequate temporary toilet facilities for personnel during the project construction period. Toilets shall be of types approved by DEP and the State Division of Health, and situated only in approved locations. The Contractor shall be responsible for operation and sanitary maintenance of the temporary toilets and shall have them removed upon completion of construction.

## ARTICLE III - GENERAL REQUIREMENTS

### 13.0 CONSTRUCTION SIGN

#### 13.1 Work Required.

The work to be performed under this Section consists of providing all labor, material and equipment necessary to install a project sign as indicated on the detail included herein and as specified herein.

#### 13.2 Materials.

- (a) Sign face shall be 3/4" Marine Exterior plywood or aluminum composite material. Posts and cross-brace shall be No. 2 Grade Pine or Fir, kiln dried and pressure treated.
- (b) Hardware:
  - (1) All hardware shall be manufactured from good, commercial-quality material and meet all applicable ASTM standards.
  - (2) Spikes and nails shall be common wire-type and shall meet AISI steel specifications 1010 or 1020.
  - (3) All hardware shall be hot-dip galvanized in accordance with ASTM A-153.

#### 13.3 Execution.

- (a) Project Sign. The sign board shall be cut to the dimensions shown on the detail herein. The sign shall be painted with one (1) coat of primer and two (2) coats of white enamel. All exterior cut edges shall be smooth sanded prior to painting. All edges shall be double primed. The letters, border and strips shall be painted as shown on the detail drawing. Posts and cross-brace shall be painted with two (2) finished coats of brown enamel.

The Contractor shall bolt the sign to posts and provide required cross-bracing. The posts and sign shall be erected and posts set in gravel base, as shown on the drawings. One (1) sign is required and is to be located at the discretion of the Inspector.

- (b) Payment. Payment for the work which shall include installation of the project sign shall be part of the lump-sum bid for "Mobilization".





Earl Ray Tomblin  
Governor



Randy C. Huffman  
Cabinet Secretary

**AML**

Robert Rice  
Chief

# STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

## Office of Abandoned Mine Lands & Reclamation

Project Cost: \$XXX,XXX.00

Funding: US Department of the Interior – OSM with fees paid by the Coal Industry

<p>Project Name: DEP#</p>
<p>Contractor: Joe Smith Contracting</p>
<p>Project Start Date: 01/01/01</p>



77 1/4"

1 1/2"

17 1/4"

1 1/8"

15 3/4"



# STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION

27 3/4"

## Office of Abandoned Mine Lands & Reclamation

7 7/8"

Earl Ray Tomblin  
Governor

Project Cost: \$XXX,XXX.00

Funding: US Department of the Interior – OSM with fees paid by the Coal Industry

3 3/4"



7 7/8"

Randy C. Huffman  
Cabinet Secretary

Project Name:  
DEP#

18"

3"



8 5/8"

Robert Rice  
Chief

Contractor: Joe Smith Contracting

Project Start Date: 01/01/01

2 1/4"

73 7/8"

48"

6"

36"

36"

6"

96"



STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
Office of Abandoned Mine Lands & Reclamation

Earl Ray Tomblin  
Governor

Project Cost: \$XXX,XXX.00

Funding: US Department of the Interior – OSM with fees paid by the Coal Industry



Randy C. Huffman  
Cabinet Secretary

**AML**

Robert Ride  
Chief

Project Name:  
DEP#  
Contractor: Joe Smith Contracting  
Project Start Date: 01/01/01

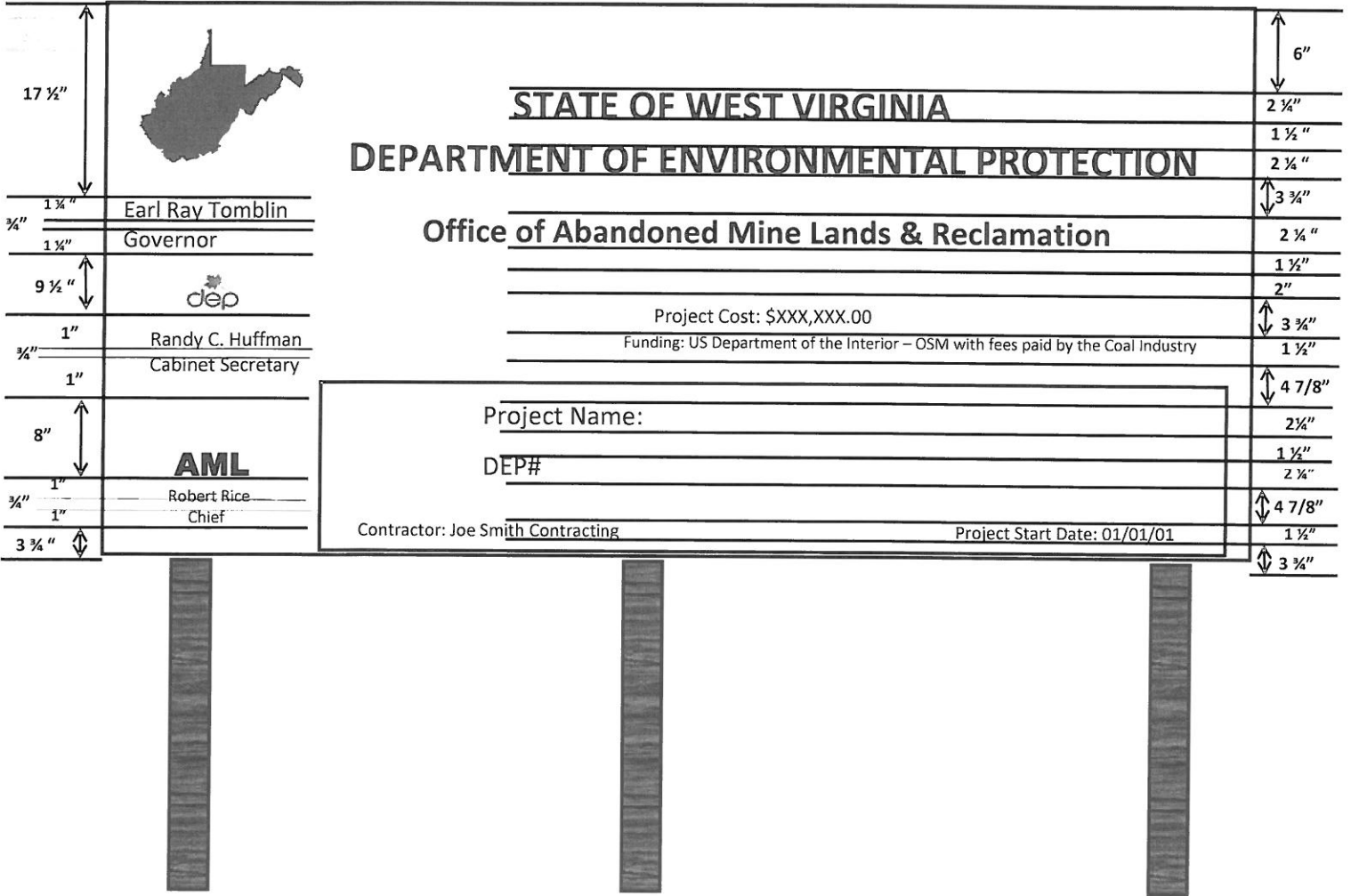
48"

5 1/4"

7 7/8"

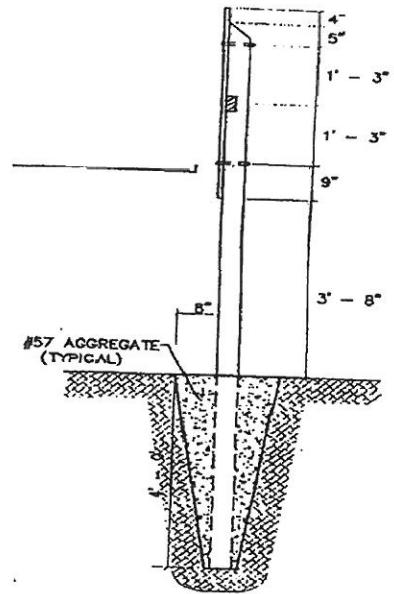
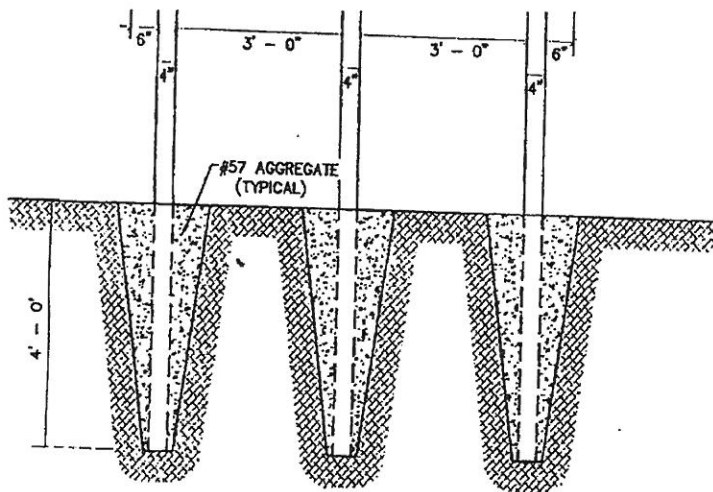
9 3/8"

81 3/8"



**Notes:**

1. Sign board to be  $\frac{3}{4}$ " by 4'X 8' marine plywood.
2. Sign board color is to be white and letter colors are to be dark green and sized as shown on the detail.
3. 2"X 4" treated cross brace let into posts.
4. Mount sign to posts using  $\frac{3}{8}$ "X 5" galvanized carriage bolt.
5. Posts are to be treated 4"X 4"X 12' and panted brown.
6. Location determined by WVDEP.



## ARTICLE III - GENERAL REQUIREMENTS

### 14.0 CLEANING & FINAL CLEAN-UP

#### 14.1 Housekeeping - Periodic Cleaning.

The Contractor shall at all times keep the construction site free of accumulations of waste materials and rubbish caused by its operations. Periodically during the progress of the work, and also when directed to do so by DEP, the Contractor shall remove, or cause to be removed by sub-contractors responsible, accumulated waste materials, rubbish, and debris, and leave the construction area in good order.

#### 14.2 Final Clean-Up.

The Contractor at all times shall dispose of all debris and waste resulting from work at the Contractor's dump site. The Contractor shall not put or spill any materials into any drainage system which would pollute area streams or waterways. The Contractor shall be liable for any stream pollution caused directly or indirectly by its own employees or those of its sub-contractors.

#### 14.3 Final.

Should disputes arise between Contractor and separate contractors, or sub-contractors as to responsibilities for cleaning-up, and refusals to do so result therefrom, DEP may hold final payment until the cleanup work is completed.

### 15.0 TESTING.

#### 15.1 When Testing Required.

Testing shall be performed as required by the specifications or ordered by the Regional Engineer. The Regional Engineer will determine the need, location, extent, and time of any testing herein specified, or in addition to that which is herein specified.

#### 15.2 Payment for Testing.

The Contractor shall select an independent testing laboratory or utilize a laboratory run by the Contractor, to perform all testing for compaction, concrete, and soils as specified herein. All laboratory reports must be signed by a registered civil professional engineer. The Contractor shall be responsible for testing payments as an incidental to the various items of the bid schedule. If the Contractor allows work to proceed beyond a testing point resulting in the disassembly of structures or the uncovering of work for testing, payment for such will be the responsibility of the Contractor at no extra cost to DEP.

## ARTICLE III - GENERAL REQUIREMENTS

### 16.0 PROJECT COMPLETION - CERTIFICATES

- 16.1 All certificates of testing, quality, compliance, and performance, as required, requested, and/or specified, shall be delivered to DEP upon delivery or completion of the work covered by the certificates.
- 16.2 All certificates of approval, compliance, and completion as required by codes, inspection and regulatory agencies, and local, State and Federal governmental authorities, shall be delivered to DEP upon completion of the work and inspections covered by such certificates.
- 16.3 The contractor shall submit to the WVDEP as built drawings certified by a Licensed Land Surveyor identifying all changes occurring on the project. The drawings shall be of professional quality. Unsuitable drawings will be returned for revisions. These drawings shall be approved by WVDEP prior to scheduling a Final Inspection.

**DEPARTMENT OF ENVIRONMENTAL PROTECTION  
OFFICE OF ABANDONED MINE LANDS & RECLAMATION**

Report for Week Ending: \_\_\_\_\_ Project Name: \_\_\_\_\_

By: \_\_\_\_\_ Location: \_\_\_\_\_

Title: \_\_\_\_\_ Contractor: \_\_\_\_\_

DATE

**Daily Activity Summary**

Sunday	<b>NO WORK</b>
Monday	Weather: _____ *F Conditions: _____
Tuesday	Weather: _____ *F Conditions: _____
Wednesday	Weather: _____ *F Conditions: _____
Thursday	Weather: _____ *F Conditions: _____
Friday	Weather: _____ *F Conditions: _____
Saturday	Weather: _____ *F Conditions: _____





**ARTICLE IV – SPECIAL CONDITIONS**

## ARTICLE IV - SPECIAL CONDITIONS

### Sections Included:

- 1.0 Use of Minority, Women's, & Small Business Enterprises
- 2.0 Erosion & Sediment Control
- 3.0 Debarment and Suspension Requirements
- 4.0 Certification Regarding Lobbying

## ARTICLE IV - SPECIAL CONDITIONS

### 1.0 USE OF MINORITY, WOMEN'S, & SMALL BUSINESS ENTERPRISES

- 1.1 Should the Contractor intend to sublet a portion of the work on this project, it shall seek out and consider minority, women's, and small business enterprises as potential sub-contractors. The Contractor shall contact minority, women's, and small businesses to solicit their interest, capability, and prices, and shall retain proper documentation to substantiate such contacts.
- 1.2 The Contractor will sign and provide the enclosed Minority, Women's and Small Business Affirmative Action Certification to DEP along with the name(s) of any subcontractor(s) it submits for approval.

**WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION  
CONSTRUCTION CONTRACTOR'S  
MINORITY, WOMEN'S AND SMALL BUSINESS  
AFFIRMATIVE ACTION CERTIFICATION**

We, \_\_\_\_\_, the undersigned, Construction Contractor on the Abandoned Mine Lands & Reclamation construction contract herein, intending to sub-contract a part of our contract work under Requisition No. \_\_\_\_\_, hereby certify as follows:

- 1) We will include qualified small, minority and women's businesses on solicitation lists;
- 2) We will assure that small, minority and women's businesses are solicited whenever they are potential sources;
- 3) We will, when economically feasible, divide total requirements into smaller tasks or quantities so as to permit maximum small, minority and women's business participation.
- 4) Where our requirements permit, we will establish delivery schedules which will encourage participation by small, minority and women's businesses.
- 5) We will utilize the services and assistance of the Small Business Administration, the Office of Minority Business Enterprise of the Department of Commerce and the Community Services Administration as required.

We understand that we may obtain the information required under the foregoing provisions from the Governor's Office of Community & Industrial Development's Small Business Development Center, 1115 Virginia Street, East, Charleston, West Virginia 25301, Phone 304/348-2960.

- 6) We will submit this certification to the Construction Supervisor when we submit proposed subcontractors for approval.
- 7) We agree that all documentation relative to affirmative action taken by us to seek out and consider the use of minority, women's and small business enterprises as sub-contractors shall be made available for inspection by representatives of the West Virginia Department of Environmental Protection and the U.S. Office of Surface Mining Reclamation and Enforcement;
- 8) This certification is an integral part of our proposal for the construction contract.

Signed this \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_ .

\_\_\_\_\_  
Signature of Authorized Representative

\_\_\_\_\_  
Title

## ARTICLE IV - SPECIAL CONDITIONS

### 2.0 EROSION & SEDIMENT CONTROL

The manual entitled "West Virginia Department of Environmental Sediment Control Design Manual BMP", 2006, is incorporated herein by reference as a guide for erosion and sediment control, except that where any provision of said manual is in conflict with any special erosion and sediment control provision set out and contained in this specification book and/or in the plans for this project, the plans and/or specification book shall prevail and be followed.

## DISCLOSURE OF LOBBYING ACTIVITIES

Complete this form to disclose lobbying activities pursuant to 31 U.S.C. 1352

Approved by OMB

0348-0046

(See reverse for public burden disclosure.)

<b>1. Type of Federal Action:</b> <input type="checkbox"/> a. contract <input type="checkbox"/> b. grant <input type="checkbox"/> c. cooperative agreement <input type="checkbox"/> d. loan <input type="checkbox"/> e. loan guarantee <input type="checkbox"/> f. loan insurance	<b>2. Status of Federal Action:</b> <input type="checkbox"/> a. bid/offer/application <input type="checkbox"/> b. initial award <input type="checkbox"/> c. post-award	<b>3. Report Type:</b> <input type="checkbox"/> a. initial filing <input type="checkbox"/> b. material change <b>For Material Change Only:</b> year _____ quarter _____ date of last report _____
<b>4. Name and Address of Reporting Entity:</b> <input type="checkbox"/> Prime <input type="checkbox"/> Subawardee Tier _____, if known:  Congressional District, if known: 4c		<b>5. If Reporting Entity in No. 4 is a Subawardee, Enter Name and Address of Prime:</b>   Congressional District, if known:
<b>6. Federal Department/Agency:</b>	<b>7. Federal Program Name/Description:</b>  CFDA Number, if applicable: _____	
<b>8. Federal Action Number, if known:</b>	<b>9. Award Amount, if known:</b> \$ _____	
<b>10. a. Name and Address of Lobbying Registrant</b> <i>(if individual, last name, first name, MI):</i>	<b>b. Individuals Performing Services</b> <i>(including address if different from No. 10a)</i> <i>(last name, first name, MI):</i>	
<b>11.</b> Information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when this transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.	Signature: _____ Print Name: _____ Title: _____ Telephone No.: _____ Date: _____	
<b>Federal Use Only:</b>		Authorized for Local Reproduction Standard Form LLL (Rev. 7-97)

## INSTRUCTIONS FOR COMPLETION OF SF-LLL, DISCLOSURE OF LOBBYING ACTIVITIES

This disclosure form shall be completed by the reporting entity, whether subawardee or prime Federal recipient, at the initiation or receipt of a covered Federal action, or a material change to a previous filing, pursuant to title 31 U.S.C. section 1352. The filing of a form is required for each payment or agreement to make payment to any lobbying entity for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a covered Federal action. Complete all items that apply for both the initial filing and material change report. Refer to the implementing guidance published by the Office of Management and Budget for additional information.

1. Identify the type of covered Federal action for which lobbying activity is and/or has been secured to influence the outcome of a covered Federal action.
2. Identify the status of the covered Federal action.
3. Identify the appropriate classification of this report. If this is a followup report caused by a material change to the information previously reported, enter the year and quarter in which the change occurred. Enter the date of the last previously submitted report by this reporting entity for this covered Federal action.
4. Enter the full name, address, city, State and zip code of the reporting entity. Include Congressional District, if known. Check the appropriate classification of the reporting entity that designates if it is, or expects to be, a prime or subaward recipient. Identify the tier of the subawardee, e.g., the first subawardee of the prime is the 1st tier. Subawards include but are not limited to subcontracts, subgrants and contract awards under grants.
5. If the organization filing the report in item 4 checks "Subawardee," then enter the full name, address, city, State and zip code of the prime Federal recipient. Include Congressional District, if known.
6. Enter the name of the Federal agency making the award or loan commitment. Include at least one organizational level below agency name, if known. For example, Department of Transportation, United States Coast Guard.
7. Enter the Federal program name or description for the covered Federal action (item 1). If known, enter the full Catalog of Federal Domestic Assistance (CFDA) number for grants, cooperative agreements, loans, and loan commitments.
8. Enter the most appropriate Federal identifying number available for the Federal action identified in item 1 (e.g., Request for Proposal (RFP) number; Invitation for Bid (IFB) number; grant announcement number; the contract, grant, or loan award number; the application/proposal control number assigned by the Federal agency). Include prefixes, e.g., "RFP-DE-90-001."
9. For a covered Federal action where there has been an award or loan commitment by the Federal agency, enter the Federal amount of the award/loan commitment for the prime entity identified in item 4 or 5.
10. (a) Enter the full name, address, city, State and zip code of the lobbying registrant under the Lobbying Disclosure Act of 1995 engaged by the reporting entity identified in item 4 to influence the covered Federal action.  
  
(b) Enter the full names of the individual(s) performing services, and include full address if different from 10 (a). Enter Last Name, First Name, and Middle Initial (MI).
11. The certifying official shall sign and date the form, print his/her name, title, and telephone number.

According to the Paperwork Reduction Act, as amended, no persons are required to respond to a collection of information unless it displays a valid OMB Control Number. The valid OMB control number for this information collection is OMB No. 0348-0046. Public reporting burden for this collection of information is estimated to average 10 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0046), Washington, DC 20503.



**ASSURANCE REQUIREMENT REGARDING EQUAL EMPLOYMENT OPPORTUNITY  
FOR VENDORS, SUPPLIERS AND CONTRACTORS ENGAGED IN  
COMMERCIAL TRANSACTIONS WITH  
THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION**

We, \_\_\_\_\_, the undersigned, desiring to avail ourselves of the benefits of engaging in commercial transactions with the West Virginia Department of Environmental Protection, hereby agree that:

- 1) All employment and personnel practices under this contract, Requisition No. \_\_\_\_\_, will be conducted without regard to race, sex, religion or national origin;
- 2) We will include in all recruitment advertisements the following wording:  
"An Equal Opportunity Employer"; and
- 3) We will provide the Chief of the Abandoned Mine Lands and Reclamation Division or his/her authorized representative, upon request, documentation that will enable him/her to judge the extent of our compliance with the requirements of Governor's Executive Order No. 4-65, of December 15, 1965.

Signed this \_\_\_\_ day of \_\_\_\_\_, 20\_\_.

\_\_\_\_\_  
Signature of Authorized Representative

\_\_\_\_\_  
Title

## ARTICLE IV - SPECIAL CONDITIONS

### **3.0 GOVERNMENT-WIDE DEBARMENT & SUSPENSION REQUIREMENTS**

#### **U. S. Department of the Interior**

#### **Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion**

#### **Lower Tier Covered Transactions**

---

- 1.** By signing and submitting this proposal, the prospective lower tier participant is providing the certification set out below.
- 2.** The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.
- 3.** The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
- 4.** The terms "covered transaction," "debarred", "suspended", "ineligible", "lower tier covered transaction", "participant", "person", "primary covered transaction", "principal", "proposal", and "voluntarily excluded", as used in this clause, have the meanings set out in the Definitions and Coverage sections of the rules implementing Executive Order 12549. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations.
- 5.** The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction originated.
- 6.** The prospective lower tier participant further agrees by submitting this proposal, that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions.
- 7.** A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant may decide the method and frequency by which it determines the eligibility of its principals. Each participant may, but is not required to, check the Non procurement List (Tel.#).
- 8.** Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
- 9.** Except for transactions authorized under paragraph 6 of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

**U. S. Department of the Interior**  
**Certification Regarding**  
**Debarment, Suspension, Ineligibility and**  
**Voluntary Exclusion**

**Lower Tier Covered Transactions**

---

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 43 CFR Part 12, Section 12.510, Participants' responsibilities. The regulations were published as Part VII of the May 26, 1988 Federal Register (pages 19160-19211). For assistance in obtaining a copy of the regulations, contact the U.S. Department of the Interior, Acquisition and Assistance Division, Office of Acquisition and Property Management, 18th and C Streets, N.W., Washington D.C. 20240.

(1) The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participation in this transaction by any Federal department or agency.

(2) Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

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Name and Title of Authorized Representative

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Signature

---

Date

## ARTICLE IV - SPECIAL CONDITIONS

### Instructions for Certification Regarding Lobbying

1. This certification and a disclosure form should be filed by each person as required, with each submission that initiates agency consideration of such person for: (1) award of a Federal contract, grant, or cooperative agreement exceeding \$100,000 or (2) an award of a Federal loan or a commitment providing for the United States to insure or guarantee a loan exceeding \$150,000.
2. This certification and a disclosure form should be filed by each person as required, upon receipt by such person of (1) a Federal contract, grant, or cooperative agreement exceeding \$100,000, or (2) a Federal loan or a commitment providing for the United States to insure or guarantee a loan exceeding \$150,000, unless such person previously filed a certification, and a disclosure form, if required, at the time agency consideration was initiated.
3. Any person who requests or receives from a person referred to in paragraphs (1) and (2) above: (1) a subcontract exceeding \$100,000 at any tier under a Federal contract; (2) a subgrant, contract, or subcontract exceeding \$100,000 at any tier under a Federal grant; (3) a contract or subcontract exceeding \$100,000 at any tier under a Federal loan exceeding \$150,000; or (4) a contract or subcontract exceeding \$100,000 at any tier under a Federal cooperative agreement, shall file a certification, and a disclosure form, as required, to the next tier above.
4. All disclosure forms, but not certifications, shall be forwarded from tier to tier until received by the person referred to in paragraphs(1) or (2) above. That person shall forward all disclosure forms to the appropriate Bureau/Office within the Department of the Interior.
5. Any certification or disclosure form filed under paragraph (4) above shall be treated as a material representation of fact upon which all receiving tiers shall rely. All liability arising from an erroneous representation shall be borne solely by the tier filing that representation and shall not be shared by any tier to which the erroneous representation is forwarded. Submitting an erroneous certification or disclosure constitutes a failure to file the required certification or disclosure, respectively. If a person fails to file a required certification or disclosure, the United States may pursue all available remedies, including those authorized by Section 1352, title 31, U.S. Code.

**U. S. Department of the Interior  
CERTIFICATION REGARDING LOBBYING**

---

**This certification is required by Section 1352, title 31, U. S. Code, entitled "Limitation on use of appropriated funds to influence certain Federal contracting and financial transactions."**

**(BEFORE COMPLETING CERTIFICATION, READ INSTRUCTIONS ON REVERSE)**

**Certification for Contracts, Grants, Loans, and Cooperative Agreements**

---

**The undersigned certifies, to the best of his or her knowledge and belief, that:**

**(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, and officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.**

**(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions. To obtain a Standard Form LLL, contact DEP or the U.S. Office of Surface Mining, 603 Morris Street, Charleston, WV 25301, phone number 347-7158.**

**(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify accordingly.**

**This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.**

**Signature \_\_\_\_\_ Date \_\_\_\_\_**

**ARTICLE V - WAGE AND HOUR INFORMATION**

# **PREVAILING WAGE RATES**

**can be obtained by contacting:**

**WV Division of Labor  
Capitol Complex  
Bldg. 6, Room 749B  
Charleston, WV 25305**

**Phone: (304) 558-7890**

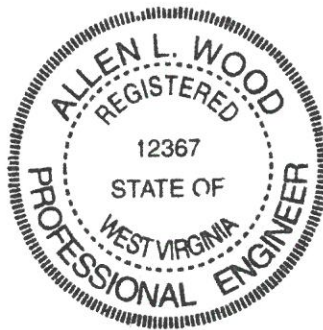
**Website: [www.sos.wv.gov](http://www.sos.wv.gov)**

**ARTICLE VI - CONSTRUCTION SPECIFICATIONS**



CONSTRUCTION SPECIFICATIONS  
PIGTAIL BRANCH REFUSE  
LOGAN COUNTY, WEST VIRGINIA

STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
ABANDONED MINE LANDS AND RECLAMATION



*Allen L. Wood*

AUGUST 2015

## TABLE OF CONTENTS

<u>SECTION</u>	<u>PAGE</u>
<b>I. SPECIAL PROVISIONS</b>	
I. Location/Site Description .....	3
II. Reference Specifications/Definitions.....	3
III. Scope of Work.....	4
IV. Bidders to Examine Location .....	5
V. Schedule of Work.....	5
VI. Measurement of Quantities.....	6
VII. Borrow (Disposal) Areas .....	6
VIII. Disposal of Unsuitable Material .....	7
IX. Interpretation of Approximate Estimate of Quantities.....	7
X. Safety.....	8
XI. Regulations .....	8
XII. Laws to be Observed .....	8
XIII. Permits, Licenses, and Fees .....	8
XIV. Electricity, Water Supply and Sanitary Facilities .....	9
XV. Utilities and Other Obstructions .....	9
XVI. Site Cleanup .....	9
XVII. Rock Blasting .....	9
XVIII. Temporary Access Roads .....	10
XIX. Site Conditions and Environmental Protection.....	11
XX. Control and Review of Work by the Engineer.....	11
XXI. Citation of Other Specifications.....	11

## II. TECHNICAL SPECIFICATIONS

1.0	Mobilization and Demobilization .....	12
2.0	Construction Layout Stakes .....	14
3.0	Quality Control.....	17
4.0	Site Preparation .....	20
5.0	Sediment and Erosion Control .....	25
6.0	Revegetation .....	30
7.0	Drainage Structures .....	37
8.0	Unclassified Excavation .....	46
9.0	Mine Seals.....	51
10.0	Utilities .....	55
11.0	Traffic Control.....	56

## PIGTAIL BRANCH DRAINAGE

### I. SPECIAL PROVISIONS

#### I. LOCATION / SITE DESCRIPTION

The Pigtail Branch Drainage project is located south on the Pigtail Branch of Hewett Creek of the Little Coal River. The site consists of draining mine portals and impounded water.

##### Directions to site:

From Charleston, take 119S to Danville Exit (Rt.85); Turn Right onto Rt. 85 and drive 2.2 miles; Keep straight onto Hwy 17 @ split, and drive 10 miles; Turn Right onto Hewett Creek Road, and drive 3.8 miles; Turn Right onto Nichols Branch Road (Pigtail Branch), and drive 0.2 miles; Veer Left (gravel road) and go through gate; follow road <0.1 miles; Turn Right onto access road and park.

The GPS location is as follows: 37° 56' 48.2" 81° 52' 23.2"

#### II. REFERENCE SPECIFICATIONS / DEFINITIONS

All references to "Owner" in these Specifications shall mean West Virginia Department of Environmental Protection, Office of Abandoned Mine Lands and Reclamation (WVDEP).

All references to "Regional Engineer" in these Specifications shall mean the Owner's Engineer or authorized representative.

All references to "ASTM" shall mean the American Society of Testing and Material Specifications, Latest Edition unless otherwise noted.

All references to "AASHTO Specifications" shall mean the Standard Specifications for Transportation Materials and Methods of Sampling and Testing by the American Association of State Highway and Transportation Officials, latest edition, and all subsequent addenda thereto.

All references to "WVDOH Standard Specifications" shall mean State of West Virginia Department of Transportation, Division of Highways Standard Specifications for Roads and Bridges, adopted 2010, and all-subsequent addenda thereto.

All references to the "Contractor" shall be understood to mean the successful bidder and/or firm or corporation undertaking the execution of the work under the terms of these

Specifications.

All references to “OSHA” shall be understood to mean The Occupational Safety and Health Administration and the standards set in the Occupational Safety and Health Act of 1970.

All references to “refuse” and/or “mine spoil” shall be understood to mean all coal refuse, shale, sandstone and other rock fragments that were generated and disposed of as such within the project area during mining and processing of coal.

All references to “AMD” shall be understood to mean all acid mine drainage discharges from the project site.

All references to “OSMRE” shall be understood to mean Office of Surface Mining Reclamation and Enforcement.

All references to “NEPA” shall be understood to mean National Environmental Policy Act.

All reference to “NPDES” shall be understood to mean National Pollutant Discharge Elimination System

### **III. SCOPE OF WORK**

The work covered by the Special Provisions and Technical Specifications consists of furnishing all labor, plant, power, equipment and supplies, and performing all operations necessary for the completion of the project. The Contractor shall perform all operations necessary for:

- Mobilization and demobilization of necessary and sufficient sized equipment to the project area to complete the construction project within stated timeframes;
- Survey and construction layout of grading, facilities, constructions, and appurtenances shown on the Plans;
- Construction and maintenance of sediment and erosion control measures including installation of a stone construction entrance and installation of silt fence prior to any disturbance in the project area as detailed on the plans and herein specified;
- Construct access roads as shown on the plans and detailed in these specifications.;
- Site preparation including clearing and grubbing at the site and burning cleared and

grubbed material to ash and removing all and any type debris, trash, and garbage;

- Regrading of the site to lines and grades shown on the Plans;
- Construction and installation of wet/modified mine seals;
- Construction and installation of drainage control items including underdrains, channels, conveyance pipes;
- Placement of soil cover material over regraded slope and exposed coal and/or coal refuse areas;
- Construction of other incidentals shown on the plans and herein specified;
- Revegetation of project disturbed areas.

The Contractor shall also be responsible for surveying, including establishing construction baseline, measuring and developing all completed quantities on the job, and the ordering, purchase and delivery of any and all materials required for construction or required for development of support areas. The Contractor shall perform all other operations as incidental to the program as specified herein.

#### **IV. BIDDERS TO EXAMINE LOCATION**

Prospective bidders are required to examine the locations of the proposed work and to determine, each in their own way, the difficulties which may be encountered in the prosecution of the same. The submission of a bid shall be prima facie evidence that such examination and determinations have been made by the Bidder. No claims for additional compensation will be considered by the Owner based on obstruction or conditions at the location of the work, which may add to the difficulties or costs of construction, even though such obstructions or conditions are not shown on the contract plans or indicated in the other construction documents. Prospective bidders are advised that should they deem it necessary to obtain any subsurface samples of test borings etc. at the site, they should obtain their own permission from the landowners.

#### **V. SCHEDULE OF WORK**

Before commencing work on this project, the Contractor shall prepare and submit a schedule of construction activities for approval by the Owner.

The Contractor shall provide adequate supervision, labor, tools, equipment, and materials to prosecute the work energetically and complete the work within the time specified.

It is the intention not to delay the work for the checking of lines or grades, but if necessary, working operations shall be suspended for such reasonable time as the Engineer may require for the purpose. No special compensation shall be paid for the cost to the Contractor for any of the work or delay occasioned by checking lines and grades, by making other necessary measurements, or by inspection.

The work hours on this project shall be between 7:00 am and 7:00 pm Monday through Saturday. Work on Sundays and major holidays will not be allowed on this project.

## **VI. MEASUREMENT OF QUANTITIES**

The Contractor shall be responsible for providing all necessary volumetric, dimension, and weight measurement equipment necessary to prosecute the work as shown on the Construction Drawings and to accurately determine quantities for payment of Contract Bid Items as approved by the Engineer. Such measurements and equipment shall be subject to the approval of the Engineer for use in this project.

## **VII. BORROW (DISPOSAL) AREAS**

All borrow (disposal) areas must be approved by WVDEP. Should the Contractor decide to obtain and utilize any borrow areas outside of construction limits, or move material from one property owner to another, unless designated on the plans, the Contractor shall be responsible to obtain from the property owner(s) of the borrow areas, all necessary rights of entry, including rights of entry for WVDEP and OSMRE for inspection purposes. The said rights of entry agreement must state that the property owner(s) indemnify and hold harmless the WVDEP for Contractor's action for any injury or damages whatsoever resulting from the use of the property.

The Contractor also shall submit a borrow/disposal area reclamation plan for prior approval by WVDEP. The Contractor shall observe the following NEPA compliance schedule relative to selecting and utilizing any off site borrow areas and/or any waste disposal areas.

- a. No borrow (disposal) site operations will affect a site listed in, eligible for or proposed to be listed in the National Register of Historic Places.
- b. No borrow (disposal) operations will be located within one-quarter mile of any federally listed established or prospective component of the National Wild and Scenic River System under 16 USC 1274 and 1276.
- c. Borrow (disposal) site operations will not cause a significant encroachment within the base floodplain (CE.O. 11988: Floodplain Management).

- d. Borrow (disposal) site operations will not be located in or affect a critical habitat of a Federally listed endangered or threatened species under 16 USC 1531, et. seq.
- e. No borrow (disposal) operations will occur in wetland areas which are designated by appropriate agencies.
- f. Borrow (disposal) site operations will be consistent with any approved plans governing ambient air quality.
- g. Adherence to these mitigation measures does not relieve the Contractor of the obligation or responsibility to obtain any other federal, state, or local approvals required to use borrow (disposal) areas and conduct such activities.
- h. Documentation: Copies of borrow (disposal) site approvals and concurrences will be submitted to the WVDEP prior to the commencement of reclamation activities.
- i. Site Monitoring: Borrow (disposal) activities will be monitored by the state to ensure compliance with contractual requirements, applicable federal, state, and local laws, and any permit conditions.

#### **VIII. DISPOSAL OF UNSUITABLE MATERIAL**

All waste areas shall be obtained in accordance with Special Provisions Section VII (Borrow/Disposal Areas) of these specifications. All unsuitable materials (wood, trash, debris, and garbage) as determined by the Engineer shall be wasted by the Contractor, at his/her expense, outside the limits of work conforming to the requirements of **Sections 4.3.8** of these Specifications. Wood may be burned in conformity with **Sections 4.3.7** of these Specifications.

The Contractor shall observe the NEPA compliance schedule relative to selecting and utilizing any off-site disposal areas in accordance with Special Provisions Section VII of these Specifications.

#### **IX. INTERPRETATION OF APPROXIMATE ESTIMATE OF QUANTITIES**

The estimate of quantities of work to be done and/or materials to be furnished under the Special Provisions and Technical Specifications, as shown on the Contract Bid Schedule, is approximate and is given only as a basis of calculation upon which the award of the Contract is to be made. DEP may omit any item or items in the contract, provided that the notice of intent to omit such item or items is given to the Contractor before any material has been purchased or labor involved has been performed, and such omission shall not



constitute grounds of any claim for damages or loss of anticipated profits. DEP may omit any item or items shown on the estimate, at any time, by agreeing to compensate the Contractor for the reasonable expense already incurred and to take over at actual cost any unused material purchased in good faith for use for the item or items omitted.

**X. SAFETY**

All regulations of the Occupational Safety and Health Act of 1970 (OSHA) are in effect for this Contract. WVDEP shall not be liable for any citations received by the Contractor as a result of failure to comply with applicable OSHA standards. Compensation is to be included in the various items of the contract for the expense involved in complying with these standards. In addition, the Contractor shall comply with Section 107.7 of the WVDODH Standard Specifications regarding public convenience and safety.

**XI. REGULATIONS**

All appropriate townships, county, state, and federal regulations shall apply to this Contract. It shall be the Contractor's sole responsibility to be aware of these regulations and to comply with them. WVDEP shall not be liable for any citations received by the Contractor. The Contractor shall keep the existing roads open and safe to public vehicular traffic as shown on the DOH approved Traffic Control Plan and Permit. The contractor shall provide appropriate barriers and warning devices as directed by the Engineer.

**XII. LAWS TO BE OBSERVED**

The Contractor shall at all times, observe, comply with, and post as required all federal, state, and local laws, ordinances, and regulations in any manner affecting the conduct of the work or applying to employees on the project as well as all orders or decrees which have been or may be promulgated or enacted by any legal bodies or tribunals having authority or jurisdiction over the work, materials, employees, or contract. The Contractor shall protect and indemnify WVDEP and its representatives against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order, or decree whether by the Contractor or by the Contractor's employees.

**XIII. PERMITS, LICENSES AND FEES**

The Contractor shall procure all permits and licenses, pay all charges and fees, and give all notices necessary and incidental to the due and lawful prosecution of the work. Permits required for this project may include but not be limited to: Water Quality Certification from WVDEP and burning permits from WVDNR and WVDEP Office of Air Quality. A copy of the permit/permits as procured shall be furnished to the Owner prior to initiation of the work under this Contract. The WVDEP will obtain the Permits (MM 109 Form)

from WVDOH and NPDES from WVDEP. Contractor shall be responsible for any Public Lands Permits necessary to complete the project work.

**XIV. ELECTRICITY, WATER SUPPLY AND SANITARY FACILITIES**

Arrangements for connecting to electric service, water supply and sanitary facilities shall be made by the Contractor, and all costs for such arrangements shall be borne by the Contractor at no additional cost to the Department.

**XV. UTILITIES AND OTHER OBSTRUCTIONS**

The Contractor shall be solely responsible to correctly locate all existing active underground and overhead utilities at the project sites and take precautions to avoid damage to them. Any existing utility lines damaged by the Contractor shall be replaced by the Contractor or repaired at no cost to the Owner. The Contractor shall notify the utility companies likely to be affected well in advance and before beginning any work within the project sites. In the event of damage to the existing utilities or other facilities, the Contractor shall notify the affected utility Owner(s) and the Engineer immediately and make, or have made, all necessary repairs and bear the expense thereof and resulting damages caused thereby. It shall be the responsibility of the Contractor to arrange for relocating the utility lines, where required and as directed by the Engineer, in accordance with the guidelines set forth by the utility company, prior to beginning construction. The Contractor will be reimbursed for actual charges invoiced by the utility company. The utility companies (and WVMIS) must be contacted by the Contractor at least one week prior to commencement of construction activities for the purpose of field locating and marking utility owned facilities within the project area. The name and phone number of the WVMIS Utility location service and of the utility companies are as follows: WVMIS1-800-245-4848

**XVI. SITE CLEANUP**

Before the project shall be considered as having been satisfactorily completed, the Contractor shall clean and remove, from the project site, all surplus and discarded materials, and equipment and shall further remove all debris and objectionable materials of any kind from areas used or disturbed by the construction operations within or within sight of the project area.

**XVII. ROCK BLASTING**

All blasting operations shall be conducted in strict accordance with applicable state and federal laws relating to rock blasting and the storage and use of explosives. The contractor shall maintain and keep in full force and effect blasting insurance to protect and indemnify the Owner and/or his agents or representative from claims for damages and shall defend

all suits at law. The Contractor shall submit to the Owner a request for permission to blast rock, a reclamation plan for the area to be disturbed, and proof of blasting insurance coverage prior to initiating blasting operations. Failure to obtain approval for blasting prior to initiating the work will result in no payment for items utilizing this rock.

#### **XVIII. TEMPORARY ACCESS ROADS**

The Contractor shall construct and maintain temporary access roads for convenient access to the various parts of the work, and for other necessary purposes incidental to the performance of this contract. The location of access roads shall be approved by the Engineer prior to construction. No separate payment for construction and maintenance of such roads will be made. The Contractor shall erect such temporary fences or guards as may be necessary to keep unauthorized persons away from the work. Grading and surfacing of temporary access roads, excavations, fills and embankments for purposes of construction, or for convenience, beyond the limits of ordered excavations and all temporary fences and guards, shall be provided by the Contractor and shall be maintained in good condition. The Contractor shall be required to maintain all roads used by his hauling equipment in a dust controlled condition. Upon completion, the Contractor shall return the disturbed areas to the approximate original condition as approved by the Engineer.

#### **XIX. SITE CONDITIONS AND ENVIRONMENTAL PROTECTION**

Conditions at the site shall be examined by the Contractor, and he shall assume responsibility as to the contours and the character of the earth, rock, water and other items that may be encountered during the excavation and filling operations. Ground water may be encountered at various locations within the proposed work areas.

The Contractor shall be responsible for the operation and maintenance of any required diversion or pumping facilities for removing ground water from work areas during progress of the work under this contract.

The Contractor shall take any necessary steps to prevent erosion or silting problems from occurring and to minimize pollution or sedimentation of the stream. If any such problems develop, the Contractor shall be responsible for taking immediate corrective action.

The Contractor shall be responsible for the repair or replacement of streets or driveways (blacktop, gravel & concrete), trees, shrubs, fences, or any other physical features disturbed by construction under this contract to original condition or better.

The Contractor shall be responsible for the replacement of any existing boundary or survey corner markers disturbed by construction activities.

## **XX. CONTROL AND REVIEW OF WORK BY THE REGIONAL ENGINEER**

All services rendered by the Regional Engineer consist of professional opinions and recommendations made in accordance with generally accepted engineering practice. Under no circumstances is it the intent of the Regional Engineer to directly control the physical activities of the Contractor or the Contractor's workmen's accomplishment of work on this project. The presence of the Department's Field Representative and/or Regional Engineer at the site is to provide the Department a continuing source of professional advice, opinions and recommendations based upon the Field Representative's and/or Regional Engineer's observations of the Contractor's work and does not include any superintending, supervision or direction of the actual work of the Contractor or the Contractor's workmen.

Any construction review of the Contractor's performance conducted by the Regional Engineer is not intended to include review of the adequacy of the Contractor's safety measures in or near the construction site.

## **XXI. CITATION OF OTHER SPECIFICATIONS**

Whenever the Specifications for this contract refer to the specifications of any society, institute, association or government organization, then such specifications cited shall become a part of this contract as if written in full. Commonly used abbreviations have the following meanings:

ASTM - American Society for Testing Materials  
ASA - American Standards Association

AWWA - American Water Works Association

AASHTO - American Association of State Highway and Transportation Officials

ACI - American Concrete Institute

Where reference is made to a Specification, it shall be the latest revision at the time called for bids, except as noted on the Plans or elsewhere herein.

## II. TECHNICAL SPECIFICATIONS

### 1.0 MOBILIZATION AND DEMOBILIZATION

#### 1.1 Description

This work shall consist of the performance of construction preparatory operations, including the movement of personnel and equipment to the project sites and for the establishment of the Contractor's offices, buildings and other facilities including the construction of all temporary access roads as necessary to begin work on a substantial phase of the contract. The location of the Contractor's office to be established shall be approved by WVDEP. It also shall include all demobilization activities involving the removal from the sites of all plant, equipment, supplies and personnel after completion of the work including cleanup of all rubbish and waste materials generated during the construction of this project and restoration of any damage to existing site improvements resulting from the Contractor's activities at the site. This item shall also include the installation of the project sign at the beginning of the project and the removal of the sign prior to the Final Inspection. All equipment and material storage areas shall be approved by WVDEP.

Upon receipt of a notice to proceed, the Contractor shall initiate and complete measures necessary to commence the work. Mobilization shall also consist of delivering to the site and assembling in working order all necessary equipment, materials, and supplies to be furnished by the Contractor to complete the work.

Demobilization shall consist of the removal from the site of all the Contractor's equipment and materials after completion of the work and cleanup of the site. Work shall be done to the satisfaction of the Regional Engineer.

#### 1.2 Method of Measurement

The method of measurement for "**Mobilization and Demobilization**" shall be per lump sum.

#### 1.3 Basis of Payment

The bid for "**Mobilization and Demobilization**" shall be a lump sum and cannot be more than 10% of the TOTAL AMOUNT BID for the project. Partial payments will be as follows:

- (a) One-half of the amount bid will be released to the Contractor with the first estimate payable, not less than 15 days after the start of work at the project site.

- (b) The final one-half of the amount bid shall be released with the last estimate payable after the work is accepted by the WVDEP and after all Final Inspection submittals are received and approved by WVDEP.

Nothing herein shall be construed to limit or preclude partial payments otherwise provided for by the contract. **No deduction will be made nor will any increase be made, in the lump sum mobilization and demobilization item amount regardless of decreases or increases in the final total contract amount or for any other cause.**

**1.4 Pay Item**

**Item 1.0, “Mobilization and Demobilization”,** per lump sum cannot be more than 10% of the TOTAL AMOUNT BID for the project.

## **2.0 CONSTRUCTION LAYOUT**

### **2.1 Description**

This item consists of furnishing, placing, and maintaining construction layout stakes, **(based on the original baselines in the plans)**, necessary for the proper performance of the work under this contract including borrow/waste areas. It shall further consist of determining the exact units of measure for payment. It also consists of checking and making any field adjustment to the plan alignment, grades and elevations as considered necessary by the Engineer. Additionally, this item shall also include the preparation of “As-Built” Plans including the Reclamation Plan and any others specifically requested by the WVDEP. All of these “As-Built” Plans shall be provided prior to the Final Inspection Meeting. This item will be paid according to the following schedule: up to fifty percent of the total bid amount of this item will be released for payment when all required layout work is completed. The remaining 50% will be paid on the final invoice once the As-Built are submitted and approved.

### **2.2 Materials**

Conventional survey stakes, hubs, batter boards, flagging, templates, straightedges and other devices necessary for laying out all parts of the work.

### **2.3 Construction Methods**

- 2.3.1** The Contractor shall be responsible for the proper layout of the work. The Owner will provide the Contractor with survey information regarding the baselines and the existing surface features shown on the Construction Drawings. The Contractor shall make all calculations involved and shall furnish and place all layout stakes.
- 2.3.2** The Contractor shall provide field forces and shall set all additional stakes as needed, such as offset stakes, reference point stakes, slope stakes, grade stakes, stakes for drainage, or other structures, supplementary bench marks, and any other horizontal or vertical controls necessary to secure a correct layout of the work including the re-establishment of the survey and construction baselines (as necessary), as shown on the Construction Drawings.
- 2.3.3** The Contractor shall be responsible for assuring the layout staking work is in conformance to the lines, grades, elevations, dimensions, and locations shown on the Construction Drawings or as required by the Engineer. The Contractor shall furnish a copy of his/her survey records for review by the Engineer and for the Owner's permanent file. These records shall be furnished as they are completed during the progress of the work.



Any inspection or review of the Contractor's layout by the Engineer and the acceptance of all or any part of it shall not relieve the Contractor of his/her responsibility to secure the proper dimensions, grades, and elevations of the several parts of the work.

**2.3.4 The Contractor shall exercise care in the preservation of stakes and benchmarks, including existing property line markers, and shall have them reset at his/her expense when any are damaged, lost, displaced or removed.**

The Contractor shall use competent personnel and suitable equipment for the layout work required and shall provide that it be done under the supervision of, or directed by, a Licensed Land Surveyor registered in the State of West Virginia. As the survey is completed the Licensed Land Surveyor shall certify that the site layout is complete for all necessary grades (both cut and fill), location and grades of all ditches, all cross-sections related to cut-fill where grade lines are necessary for construction and or billing. This layout shall include location stakes and cut-fill lines marked on the stakes for each pre-manufactured or formed on site structures (manholes, drop inlets, headwalls, etc.). The layout shall also include centerline stake with cut-fill lines for each channel and any areas of excavation and re-grade. The certified layout and cross-sections surveyed must be submitted to the WVDEP for approval prior to beginning construction.

**2.3.5** As-Built plans shall be provided to the WVDEP prior to the Final Inspection Meeting. The As-Builts shall include two discs each of the plans in PDF and AutoCAD 2007-2014 format on CD-ROM or DVD and one paper copy of the plans with the same size and scale as contained on the original plans. The As-Builts Shall include the following:

1. The As-Builts shall show all pay items remaining on site post construction.
2. The As-Builts shall show all horizontal and vertical dimensions of all installed components (i.e. pipes, drop inlets, mine seals, drainage channels, splash pads and manholes) as well as surveyed locations of the installed structures.
3. Cut-fill sections shall have the area of the section marked by the section for easier calculation.
4. The As-Builts shall have the lines on the plans shown in either color or line type to distinguish between our original plan lines, the contractor's original survey lines and the final grade lines. This will apply for all cross-sections on the project.
5. All waste and borrow areas shown on the As-Builts.
6. All work completed by the Licensed Land Surveyor on the As-Builts must be certified by the Licensed Land Surveyor as to completeness and accuracy of the plan submittal.
7. Total quantities for each pay item shall be calculated and placed in table(s) on the title sheet.



#### 2.4 **Method of Measurement**

The Method of Measurement for “**Construction Layout**” shall be per lump sum. Said lump sum bid cannot be more than 5% of the "TOTAL AMOUNT BID" for the project.

#### 2.5 **Basis of Payment**

The basis of payment shall include furnishing, setting, maintaining, and resetting the stakes when necessary, and for furnishing all engineering personnel, equipment, materials, and all incidentals thereto, shall be by the lump sum bid for “**Construction Layout**”. The lump sum payment also shall include the cost for providing the Engineer pre- and post-construction ground line cross-sections for all disturbed or re-graded areas including borrow areas and “As-Built” Plans as described herein. Said lump sum bid cannot be more than 5% of the TOTAL AMOUNT BID for the project. **Neither deduction nor increase will be made in the lump sum “Construction Layout” item amount regardless of decreases or increases in the final total contract amount or for any other cause. This item will be paid according to the following schedule: up to fifty percent of the total bid amount of this item will be released for payment when all required layout work is completed. The remaining fifty percent will be paid on the final invoice once the As-Builts are submitted and approved.**

#### 2.6 **Pay Item**

**Item 2.0, “Construction Layout”,** per lump sum cannot be more than 5% of the TOTAL AMOUNT BID for the project.

### 3.0 QUALITY CONTROL

#### 3.1 Description

This work shall consist of testing for verification that the materials supplied and the work performed are in accordance with these specifications

#### 3.2 Materials

3.2.1. The Contractor shall submit a minimum of two (2) copies of shop drawings, catalog cuts and material certifications (as applicable) to the Engineer for all offsite materials to be incorporated into the work. **Written approval from the Engineer will be required prior to incorporation of these items into the work.**

3.2.2 The Contractor shall submit at least two (2) copies of the results of all tests conducted on in-situ material, concrete and grout to be used in this project.

1. As a minimum, the compaction tests will include moisture content & density tests of the soil in accordance with the provisions of **ASTM D698** (Standard Proctor) field density tests following compaction. A new Standard Proctor will be run when soil type changes occur on site and/or at the direction of the Engineer or his representative.
2. Soil tests to determine the lime and nutrient requirements of the areas to be re-vegetated.
3. Compressive strength test for grout in accordance with **ASTM C109**, and for concrete in accordance with **ASTM C31 & C39**.

#### 3.2.3 **Tests Required**

Grouted Ditch	As Specified in Plans and Specifications
Slope fill Compaction	As Specified in Plans and Specifications
Soil Test	As needed to determine Nutrient tests NPK
Material Certification	Manufacture certification on all materials on project
Rock	Sodium Sulfate Soundness

#### 3.3 Construction Methods

3.3.1 The Contractor shall furnish the services of his own testing laboratory or select an independent testing laboratory, as long as the laboratory is under the direct supervision of a Registered Professional Civil Engineer. The laboratory must be approved by the Owner.

The Contractor shall furnish a certified technician to perform the required testing at the project site. The technician shall submit a copy of his certification and a copy of that certification shall be submitted WVDEP at the Pre-Construction Conference. The technician shall be responsible for chain of custody of any samples that must leave the site.

- 3.3.2** Testing for compaction, soil nutrient and lime requirements for soil, compressive strength tests for concrete and grout, shall be performed as required by these specifications and/or ordered by the Engineer or his representative in writing. The Engineer will determine the locations and time of any testing herein specified and the need and extent of any testing in addition to that which is herein specified.
- 3.3.3** The contractor shall be responsible for performing laboratory tests of the coal, mine spoil, and any natural soil to identify the compaction requirements for their use as fill and cover material, respectively. In addition, field density tests shall be performed in accordance with the Construction Specifications. All test results shall be submitted to the Engineer for approval of compaction criteria prior to compaction of the fill material and after the fill material is placed to verify that the required compaction is obtained.
- 3.3.4** Only new and first class materials, which conform to the requirements of these Specifications, shall be used unless specified otherwise. When requested by the Owner, the Contractor shall furnish a written statement of the origin, composition, and manufacturer of any or all materials (manufactured or produced) that are to be used in the work. **The sources of supply of each material used shall be approved by the Engineer before delivery is started. If, at any time, sources previously approved fail to produce materials acceptable to the Owner, the Contractor shall furnish materials from other approved sources.**

### **3.4 Method of Measurement**

The method of measurement for quality control work done as described above will be on a lump sum basis. Said lump sum bid cannot be more than 3% of the TOTAL AMOUNT BID for the project.

### **3.5 Basis of Payment**

The quantity of quality control work done will be paid at the contract lump sum price bid for this item. Said lump sum bid cannot be more than 3% of the TOTAL AMOUNT BID for the project. Nothing herein shall be construed to limit or preclude partial payments on this item up to 100% of the bid amount. **No deduction or increase shall be made in the lump sum "Quality Control" item amount regardless of decreases or increases in the final total contract amount or for any other cause.**

**3.6 Pay Item**

**Item 3.0, “Quality Control”,** per lump sum cannot be more than 3% of the TOTAL AMOUNT BID for the project.

## **4.0 SITE PREPARATION**

### **4.1 Description**

#### **4.1.1 Clearing & Grubbing**

Work performed under this section shall include the removal and disposal of all trees, stumps, shrubs and any other vegetation, wood, debris, garbage of any nature from those areas specified below and/or shown on the plans and/or any other areas as approved by WVDEP. This work shall also include the preservation from injury to all vegetation, utilities or other objects to remain as well as all other ancillary work as described.

#### **4.1.2 Access Road Construction**

Temporary access roads constructed to gain access to, travel between or otherwise required for equipment/vehicular site access shall be kept to a minimum and only constructed where necessary upon approval from the WVDEP, where applicable. If the Contractor constructs such travel routes, they shall be reclaimed and revegetated according to **Section 6** upon completion of the construction activities, as deemed necessary by the WVDEP. Any additional access shall require the Contractor to obtain written permission from the respective land owner. The existing access roads shall be maintained during construction (except when culvert, ditch and road construction are being performed), and shall be left in a condition equal to, or better than, the existing condition upon completion of construction.

Any re-grading necessary for the construction of the access roads will be incidental to the cost of the work described herein.

Final grading, stabilization, and providing final drainage control for existing access roads shall be performed after reclamation operations for the project have been completed.

#### **4.1.3 Access Road Rehabilitation**

Any regrading or resurfacing necessary to restore existing roads or driveways used during construction to a condition that is equal to or better than the condition encountered before construction activities.

#### **4.1.4 Permanent Access Road**

Permanent Access Road shall be any access road that is labeled on the plans to remain after construction is completed.

#### **4.1.5 Stabilization Fabric**

Stabilization fabric shall be woven fabric that is used to stabilize any soft areas on a road surface prior to stone application.

#### **4.1.6 Spill Containment Area**

Spill containment measures shall be used for fuel and lubricant storage areas. All containers, barrels, buckets, cans, etc., are to be legally disposed of offsite. Used lubricants are to be disposed of according to state law to minimize pollution to the local surface and ground water supplies. Spills are the responsibility of the Contractor and need immediate clean up and maintained at no expense to the State. Fuel tanks manufactured with secondary containment are desirable; the minimum secondary containment shall be 110 percent.

### **4.2 Materials**

**4.2.1** Any equipment and construction materials required for clearing, grubbing, grading and stone placement.

**4.2.2** Stone to be placed for "Access Road Stone" shall conform to the requirements for Class 1 Aggregate. In areas that will not support the stone due to soft conditions, stabilization fabric will be required as directed by the Engineer.

**4.2.3** Stabilization Fabric shall be woven and meet the requirements of Mirafi 600X or approved equal.

### **4.3 Construction Methods**

**4.3.1** The specific areas to be cleared and grubbed are as shown on the Contract Drawings and are generally described as, but not limited to, those specific areas of excavation, backfill, soil borrow or drainage structure installation.

**4.3.2** The Contractor shall clear the site within the limits of the areas to be regraded. The WVDEP shall exercise control over clearing and shall designate all trees, plants and other objects to be removed or to remain.

**4.3.3** Clearing and grubbing shall be completed prior to initiation of earthwork operations only to the extent necessary to complete the work. The Contractor shall confine his operations strictly to required areas. If he clears and grubs beyond the required areas, whether knowingly or accidentally, he shall, at his expense, replant and otherwise restore all areas outside the limit lines to a condition equal to that existing prior to start of work.

**4.3.4** All timber eight (8) inches in diameter and larger at stump height shall be saw cut

prior to grubbing operations. Timber shall be topped with the branches removed and stacked and stockpiled in an appropriate manner in an accessible location approved by the WVDEP on the property from which it was cut. Timber to be stockpiled shall not be pushed down by equipment prior to being cut nor can it be indiscriminately shoved into a stockpile.

- 4.3.5 All stumps, roots, buried logs and brush shall be removed. Grass, however, may be incorporated into the re-soiling material. Taproots and other projections over 1½ inches in diameter shall be grubbed out to a depth of at least ten (10) inches below the planned subgrade or slope elevation. All holes remaining after the grubbing operation shall have the sides broken down to flatten out the slopes, and shall be filled with suitable materials, moistened and properly compacted.
- 4.3.6 Cleared and grubbed areas shall be worked such that positive drainage is provided to prevent ponding of water except for the purpose of sediment control sumps as approved by the WVDEP.
- 4.3.7 All organic material shall be burned completely to ash or otherwise removed from the site and disposed of in a manner approved by the WVDEP. Burning of the combustible material will not be permitted on or near refuse, mine portals or within close proximity to coal seams, residence, structures or utilities. The Contractor shall obtain all permits and licenses required prior to burning the material. A plan showing the location of material to be burned and all fire control measures to be implemented, including copies of permits and licenses, shall be submitted to the WVDEP's representative at the site for approval. If a permit cannot be obtained because of the conditions stated above, the tree top and stumps can be chipped or disposed of offsite to an approved location.
- 4.3.8 All other materials generated from required clearing and grubbing operations shall be removed and disposed of by the Contractor. All garbage, construction debris, mining debris, etc., shall be disposed of in approved waste areas or landfills (disposal tickets must be furnished to WVDEP). It shall be the responsibility of the Contractor to obtain, at no expense to the WVDEP, all necessary waste and borrow areas or landfills for the disposal of waste materials in accordance with any applicable local, state, and/or federal regulations including compliance with NEPA requirements (See **Section VII for NEPA Compliance Schedule**). All waste and borrow areas must be approved by the WVDEP and the Contractor must provide a reclamation plan for approval. In addition, for all waste and borrow areas outside the construction limits, the Contractor must obtain from the property owner a right-of-entry agreement in which the property owner indemnifies and holds the WVDEP harmless from any injury or damages whatsoever resulting from the use of the property.



- 4.3.9 It shall be the sole responsibility of the Contractor to correctly locate and avoid all underground, on-ground, and overhead utilities, facilities and other structures and constructions, and for that purpose, shall employ all necessary precautions and methods to insure avoidance of and damage to such constructions. In the event damage does occur, the Contractor shall notify the affected Owner and the WVDEP immediately and make or have made all necessary repairs and bear the expense thereof and resulting damage caused thereby. See “**Special Provisions**”, **Section XV “Utilities and Other Obstructions**”, of these specifications for more information on utilities.
- 4.3.10 Should offsite disposal or borrow be necessary, the Contractor shall observe the NEPA Compliance Schedule as per **Section VII** of the Special Provisions.
- 4.3.11 Existing site access roads shall provide safe, all-weather access to the site. These existing roads, including stoned and paved roads, shall be maintained during construction and left in a better than or equal to condition. The Contractor is responsible for locating and avoiding all underground and overhead utilities and constructions during access road grading and maintenance.
- 4.3.12 The “Permanent Access Road(s)” shall be constructed at the location(s) shown on the plans and in accordance with the typical detail. After construction has been completed, the temporary access road stone, separation fabric and pipes shall be removed with the area regraded to approximate contours, blended into surrounding grades, and revegetated in accordance with **Specification 6** to the satisfaction of the Engineer.
- 4.3.13 When existing fences are encountered within or near work limits, which by necessity of the construction activities require their dismantling, the Owner shall be consulted to secure their approval for the need of fencing, as well as determination as to whether temporary and/or permanent fencing will be utilized. The Contractor will be required to re-construct fence lines of any type located within the project area. Temporary fencing shall be installed along the alignment selected by the Owner, with sufficient material included to alter said alignment as may be required to accommodate the construction activity. Similarly, approval for the use and location of permanent fencing shall be obtained from the Owner well in advance of construction. Typically, permanent fencing shall be compatible with that which existed and installed in the location of the existing fence. Existing fences outside the construction limits and near or adjacent to the project area are to remain undisturbed in place. Any fencing damaged outside the work limits shall be repaired or replaced at the expense of the Contractor, to a condition equal to, or better than, its original condition. Wire for permanent or temporary fencing shall be 15 ½ gauge 4 pronged barbed wire unless otherwise stated in the plans.
- 4.3.14 Any existing property markers encountered during construction activities shall be replaced accurately and to an “as good as” or “better than” condition and as approved by the WVDEP. This work will be paid under **Section 2.0**, Construction



Layout, of these Specifications.

**4.3.15** Material storage areas within the Contractor's Work Limits shown on the plans shall require the approval of the Owner. Material storage areas outside the Contractor's Work Limits will require permission from the respective landowner in accordance with **Special Provision VII**.

#### **4.4 Method of Measurement**

**4.4.1** There shall be no measurement for "**Site Preparation**" item as it is a lump sum not to exceed 10% of the total amount bid.

**4.4.2** The method of measurement for "**Access Road Stone**" shall be per ton, based upon weigh tickets from the commercial supplier of the stone that is delivered and placed at the locations identified on the plan drawings.

#### **4.5 Basis Of Payment**

**4.5.1** The basis of payment for "**Site Preparation**" shall be at the lump sum price bid. The amount shall not exceed 10% of the TOTAL AMOUNT BID for each bid. Payment shall be full compensation for doing all the work herein prescribed in a workmanlike and acceptable manner; including the furnishing of all labor, materials, tools, equipment, supplies, and incidental necessary to complete the work. This includes all clearing grubbing, demolition, temporary and vegetated access road construction with water breaks and water break outlet protection (final revegetation at completion of job).

No deduction will be made, nor will any increase be made, in the lump sum "Site Preparation" amount regardless of decreases or increases in the final total contract amount or for any other cause.

**4.5.2** The basis of payment for "**Access Road Stone**" shall be the unit price bid and shall include the following items, which price and payment shall be full compensation for all materials, labor, equipment and incidentals necessary to perform the work.

#### **4.6 Pay Items**

**Item 4.1, "Site Preparation"**, per lump sum. Cannot be more than 10% of the "Total Amount Bid" for the project.

**Item 4.2, "Access Road Stone"**, per ton.

## **5.0 EROSION & SEDIMENT CONTROL**

### **5.1 Description**

This item shall consist of furnishing all materials, equipment, labor and incidentals necessary for the installation of Straw Wattles, Sediment Control Barrier (e.g. silt fence or super silt fence) structures, Stone Check Dams and Stabilized Construction Entrances as designated in the Drawings. Sediment control shall be placed on regraded outslope areas concurrent with construction and prior to revegetation. Additional quantities may be added at the discretion of the WVDEP.

The CONTRACTOR shall be given a NPDES Permit with an approved erosion and sediment control plan at the pre-construction meeting. This plan shall include measures to be utilized for temporary and permanent sediment and erosion control. This plan shall also include the measures as outlined herein. The NPDES approved plan **does not** relieve the CONTRACTOR of his/her responsibility to be in compliance with any and all permits. All costs associated with meeting the federal and/or state regulations shall be the sole responsibility of the Contractor.

**NOTE:** Sediment Control Measures shall be required on the perimeter of the project site for sediment control in accordance with the NPDES requirements. The silt fence for sediment control shall be placed before any construction work begins. This fence shall remain and be maintained during the entire construction process.

The following are the minimum requirements of the NPDES Permit and/or the NPDES BMP Manual.

### **VEGETATIVE PRACTICES**

- Except as noted below, stabilization measures shall be initiated as soon as practicable in portions of the site where construction activities have temporarily or permanently ceased, but in no case more than fourteen days after the construction activity in that portion of the site has permanently ceased.
- Where the initiation of stabilization measures by the fourteenth day after construction activity temporarily or permanently ceases is precluded by snow cover, stabilization measures shall be initiated as soon as conditions allow.
- During the construction of the project, soil stockpiles shall be stabilized by temporary seeding and mulching and protected with sediment trapping measures such as silt fence. Perimeter controls shall be placed around the stockpile immediately; seeding and mulching of stockpiles shall be completed within seven days of formation of the stockpile if it is to remain in place longer than 21 days.
- Establishment of final cover must be initiated no later than 7 days after reaching final grade.
- Where construction activity will resume on a portion of the site within 14 days from when activities ceased, (e.g., the total time period that construction activity is temporarily halted is less than 14 days) then stabilization measures do not have to

be initiated on that portion of the site by the seventh day after construction activities have temporarily ceased.

- Areas where the seed has failed to germinate adequately (uniform perennial vegetative cover with a density of 70%) within 30 days after seeding and mulching must be reseeded immediately, or as soon as weather conditions allow.
- Diversions must be stabilized prior to becoming functional.

## **EROSION & SEDIMENT CONTROL CONSTRUCTION SEQUENCE**

- Install stabilized construction entrance as shown on site plans.
- Install perimeter sediment control devices as shown on site plans.
- Clear and grub site.
- Provide sediment control for any topsoil stockpiles.
- Commence rough grading of site. Continue to maintain and inspect all erosion and sediment controls.
- Install additional erosion and sediment controls as shown on site plans.
- Fine grade site.
- Permanently seed and mulch all disturbed areas within 7 days of reaching final grade and install erosion control wattles.
- Upon completion of project including adequate stabilization, remove all remaining erosion and sediment controls.

## **5.2 Materials**

- 5.2.1** Sediment Control Barriers: silt fencing materials and installation shall meet all applicable requirements of the manufacturer's specifications.

Even with the specific prior approval of the WVDEP, the use of silt fence shall be limited to relatively flat areas and the toe of selected slopes.

- 5.2.2** Crushed stone used for Stone Construction Entrances shall be 1 ½" Crusher Run. Aggregate shall have a maximum weighted loss of twelve percent when subjected to five (5) cycles of the Sodium Sulfate Soundness Test – **ASTM C88 (Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate)**, as modified by the American Association of State Highway and Transportation Officials (**AASHTO T-104**).

- 5.2.3** Stabilization fabric used for Stone Construction Entrances shall be placed on a prepared subgrade prior to placement of stone. Stabilization Fabric shall be woven and meet the requirements of Mirafi 600X or approved equal.

- 5.2.4** Rock Check Dams shall be required at the locations as shown on the plans. The rock check dams shall be constructed with 3"-6" stone. The  $d_{50}$  stone shall range in size from 3-inches minimum to 6-inches maximum diameter with no more than 10% by weight less than 3 inches and no more than 50% by weight greater than 4". Stone shall have a maximum weighted loss of twelve percent when subjected to

five (5) cycles of the Sodium Sulfate Soundness Test – **ASTM C88** (Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate), as modified by the American Association of State Highway and Transportation Officials (**AASHTO**) **T-104**. The stone shall extend from side to side of the drainage channel and shall at each edge to the top of the existing ground. The center height of the check dam shall be 6” lower than the outer edge height. The rock check dam shall be wrapped in filter fabric to enhance the sediment trapping capabilities. The fabric shall meet the standards of Thrace-Linq 140X or Engineer approved equal.

### **5.3**     **Maintenance**

- 5.3.1** During the course of the project, sediment control barriers shall be maintained in sound condition and accumulations of silt which may threaten their effectiveness shall be removed. Silt removed from the sediment control structures shall be taken to an approved disposal area.
- 5.3.2** The Stabilized Construction Entrance shall be maintained in a condition that will prevent tracking or flowing of sediment onto public rights-of-way. This may require periodic top dressing with additional stone as conditions demand and repair and/or cleanout of any measures used to trap sediment. All sediment spilled, dropped, washed or tracked onto public rights-of-way must be removed immediately.

Wheels on all vehicles shall be cleaned to remove sediment prior to entrance onto public rights-of-way. If washing is required, it shall be done on an area stabilized with stone and which drains into approved sediment trapping device. If the street is washed, precautions must be taken to prevent muddy water from running into waterways or storm sewers.

- At a minimum, all erosion and sediment controls on the site will be inspected at least once every seven calendar days and within 24 hours after any storm event of greater than 0.5 inches of rain per 24-hour period.
- All controls should be cleaned out when sediment reaches one half the sediment capacity of that control.
- Inspection and maintenance records must be kept onsite.

### **5.4**     **Installation**

- 5.4.1** Silt Fence: Silt fence posts shall be a minimum of 48" long driven 16" minimum into the ground. Wood posts shall be 1-1/2" x 1-1/2" square (minimum) cut, or 1-3/4" diameter (minimum) round and shall be of sound quality hardwood. Steel posts will be standard T or U section weighing not less than 1.00 pound per linear foot. Geotextile shall be fastened securely to each fence post with wire ties or staples at top and mid-section and shall meet the requirements for Geotextile Class F. Where ends of geotextile fabric come together, they shall be overlapped, folded and stapled to prevent sediment bypass. Silt Fence shall be inspected after each

rainfall event and maintained when bulges occur or when sediment accumulation reached 50% of the fabric height.

- 5.4.2 Stabilized Construction Entrance(s) shall be required at the access point of the construction site at the location(s) shown on the plans. The stabilized construction entrance shall consist of filter fabric and a minimum of six (6) inches of 3" to 6" stone. The stone entrance shall be a minimum of seventy (70) foot long and twelve (12) foot in width. This stone construction access must conform to the detail drawings shown in the plans.
- 5.4.3 Rock Check Dams w/Optional Sediment Trap shall be installed in constructed channel per the sequence of construction. The top of dam shall have a low center section and with the same width as the channel bottom and 6" lower than the outer edges. Rock Check Dams w/ Sediment Traps consist of over excavating the channel behind (up-slope) from the rock check dam and shall be constructed per the typical section on Plans. Standard rock check dams and rock check dam w/sediment traps shall be removed after the first growing season and the channel brought up to the lines and grades as depicted in the channel profile and stabilized with erosion control matting per the typical detail for vegetated channels.

## 5.5 Removal

Upon completion of the project including adequate stabilization, all temporary erosion and sediment controls shall be removed from the site, including but not limited to water breaks, water break outlet protection, check dams and silt fencing. The site should be left with a clean/neat appearance and any disturbed areas shall be revegetated. Rock outlet protection for permanent drainage structures shall not be removed once the project is complete.

## 5.6 Method Of Measurement

- 5.6.1 The method of measurement for "**Silt Fence**" installation and maintenance in conformance with the specifications and accepted by the WVDEP shall be on a per linear foot basis.
- 5.6.2 The method of measurement for "**Stabilized Construction Entrance**" installation and maintenance in conformance with the specifications and accepted by the WVDEP shall be on per ton and shall be based upon weigh tickets from the commercial supplier of the stone that is delivered and placed at the locations identified on the plan drawings
- 5.6.3 The method of measurement for "**Rock Check Dam**" (w/optional sediment trap) installation and maintenance in conformance with the specifications and accepted by the WVDEP shall be per each.

**5.6.4** Any additional sediment control, i.e. sumps etc., installed by the contractor to meet any applicable State or Federal Law or Regulation shall be the Contractor's sole responsibility and all costs pursuant thereto shall be born fully by the Contractor. This also includes the removal and disposal of sediment from the existing Sediment Basins. However, any additional sediment control approved by the WVDEP prior to placement shall be included for measurement and payment.

## **5.7 Basis of Payment**

**5.7.1** The basis of payment for “**Silt Fence**” shall be on the contract unit price bid for the following items, which price and payment shall be full compensation for all materials, labor, equipment and incidentals necessary to perform the work. Additionally, payments shall constitute full compensation for any required maintenance, sediment removal and disposal.

**5.7.2** The basis of payment for “**Stabilized Construction Entrances**” shall be on the contract unit price bid for the following items, which price and payment shall be full compensation for all materials, stabilization fabric, labor, equipment and incidentals necessary to perform the work. Additionally, payments shall constitute full compensation for any required maintenance including periodic top dressing with additional stone.

**5.7.3** The basis of payment for “**Rock Check Dam**” (w/optional sediment trap) shall be on the contract unit price bid for the following items, which price and payment shall be full compensation for all materials, labor, equipment and incidentals necessary to perform the work. Additionally, payments shall constitute full compensation for any required maintenance, sediment removal/disposal and removal of rock check dams and rock check dams with sediment traps after the first growing season.

## **5.8 Pay Items**

**Item 5.1, “Silt Fence”, per linear foot.**

**Item 5.2, “Stabilized Construction Entrance”, per ton.**

**Item 5.3, “Rock Check Dam”, per each.**



## 6.0 REVEGETATION

### 6.1 Description

This work shall cover all operations incidental to the establishment of vegetation within the limits of construction as shown on the Drawings and any other areas as approved by the WVDEP. This work also includes the furnishing and the application of fertilizer, agricultural limestone and mulch and the furnishing and sowing of seed, all in accordance with these Specifications and as designated herein.

No areas outside the limits of construction shall be disturbed without prior approval from the WVDEP in order to ensure that Right-of-Entry has been obtained.

Any areas outside the limits of construction, disturbed by the Contractor shall be revegetated by the Contractor at no expense to the WVDEP.

### 6.2 Materials

#### 6.2.1 Fertilizer

The commercial fertilizer to be used shall consist of 10-20-20 grade of uniform composition and furnished in standard containers. These containers, in accordance with applicable state and federal laws, must be clearly marked with the following information:

- a. Weight
- b. Name of Plant Nutrients
- c. Guaranteed Nutrients Percentages

Fertilizer shall be applied at a minimum rate of 1,000 lbs/acre. Fertilizer shall be applied immediately to all areas reaching final grade by one of the two following methods:

- a. Apply and incorporate fertilizer during seedbed preparation.
- b. Apply fertilizer in hydro seeding mixture following seedbed preparation.

#### 6.2.2 Limestone

The lime to be used will be an agricultural grade pulverized limestone containing a minimum of 75% total carbonates or calcium carbonate equivalent. Fineness will be such that no less than 70% will pass through a #100 sieve and 100% will pass through a #20 sieve. Lime rate shall be formulated from soil test results. In the absence of soil testing, a rate of three (3) tons per acre will serve as a preferred minimum.

Lime shall be applied immediately to all areas requiring seeding reaching final grade by 1 of the 2 methods listed in **Section 6.2.1**, "Fertilizer".

**6.2.3 Seed Mixtures**

The variety of grass and legume seed furnished for the project shall bear a tag, in accordance with applicable state and federal laws, with the following information listed:

1. Lot Number
2. Seed Producers Name
3. Percent Purity
4. Percent Germination
5. Date of Germination Testing
6. Weed Seed Content (should be <0.25% by weight)

All leguminous seed shall be inoculated with the specified strain of rhizobia which shall be a pure culture of bacteria selected for maximum vitality. No rhizobia shall be used which has passed the expiration date on each package. The inoculant shall be applied at five times the recommended rate except when used in a hydro seeding mixture when the rate will be ten times the recommended rate.

**6.2.3.1 Temporary Seed Mixture**

All stockpiles or other disturbed areas which will require further disturbance in which the additional disturbance will be delayed for a period of two (2) weeks or longer shall be vegetated according to the following guidelines.

Variety of Seed	SPRING	SUMMER	FALL	WINTER
	3/15-5/15	5/15-8/15	8/15-10/15	10/15-11/15
	-----lbs/acre-----			
Annual Ryegrass (Lolium multiflorum)	40	40		
German Millet * (Setaria italica)	40			
Cereal Rye (Secale cereale)			170	

\*Do not use Japanese Millet

All areas to be temporarily seeded which are to be re-disturbed shall be fertilized with 500 lbs/acre of 10-20-20. All areas reaching final grade to be temporarily seeded shall be fertilized according to **Section 6.2.1**. Lime



shall be applied according to **Section 6.2.2** and mulched according to **Section 6.2.4**.

**6.2.3.2 Lawn Seed Mixture**

Existing lawn areas disturbed by construction shall be reseeded using the following mixture:

Rate lb/1000 sq. ft.	Seed Variety	Minimum Specifications	
		0% Purity	%Total Germination
0.45	Red Fescue (Pennlawn)	98	85
0.90	Kentucky Bluegrass	85	75
0.70	Merion Bluegrass	90	75
0.20	Annual Ryegrass*	95	85

\*Use Annual Ryegrass only in mixtures seeded after August 1 and prior to May 15.

**6.2.3.3 Permanent Seed Mixture**

Permanent vegetation shall be established on all areas reaching final grade or other areas not likely to be destroyed by further construction activities. Any areas which reach final grade between March 15 - May 15 or August 15 - October 15 shall be seeded with the appropriate temporary seed mixture according to **Section 6.2.3.1**. These areas shall then be reseeded with a permanent seed mixture, without Annual Ryegrass, during the next defined seeding period according to this section. The actual date of permanent seeding will require the Engineer's approval.

Variety of Seed *	SPRING	FALL
	3/15 - 5/15	8/15 - 10/15
	-----lbs/acre-----	
Orchardgrass (Dactylis glomerata)	30	30
Birdsfoot Trefoil (1) (Lotus corniculatus)	15	15
Red Clover (Trifolium pratense)	10	10
Annual Ryegrass (2) (Lolium multiflorum)	25	25

Spring Oats	35	0
or		
Winter Wheat	0	90

(1) Herbaceous legumes must be treated with the appropriate bacterium before seeding. On areas which are steeply sloping (steeper than 1.7:1) or slide prone, substitute Crownvetch (*Coronilla varia*) at 20 lbs./acre for Birdsfoot Trefoil.

(2) Use Annual Ryegrass only in mixtures seeded after August 1 and before May 1.

\*Use only certified “blue tag” seed. Seed-rate suggested is for pure live seed (PLS) in lbs/acre.

**\*For shaded areas add the following quantity of seed to the standard mix:**

**Lawn Seed Mixture**      Add 4 lbs/1000ft<sup>2</sup> of Red Fescue.

**Permanent Seed Mixture**    Add 3 lbs/acre of White Clover  
    Add 10 lbs/acre of Perennial Rye  
    Add 10 lbs/acre of Blue Grass  
    Add 50 lbs/acre Cover Grain (Wheat or Rye)

#### 6.2.4 **Mulch Material**

Mulching procedures shall take place immediately following seeding. Mulch material shall consist of erosion matting, straw, or wood cellulose fiber.

##### 6.2.4.1 **Straw**

Straw mulch shall include baled wheat or oats straw, or baled grass hay. Straw mulch shall be dry and reasonably free of weed, seeds, sticks, or other foreign material. Straw mulch shall be applied at a rate of 2 tons/acre. **(No baled grass hay shall be used in yard areas.)** The straw mulch shall be anchored with 100 gallons/acre asphalt emulsion or 750 lbs/acre wood cellulose fiber.

##### 6.2.4.2 **Wood Cellulose Fiber**

Wood cellulose fiber may be used only on slopes steeper than 2H:1V at a rate of 1,500 lbs/acre. Mulch for use with the hydraulic application of seed, fertilizer, and lime shall consist of wood cellulose fiber. It shall be processed in such a manner that it will contain no growth or germination inhibiting factors and shall be dyed green. It shall be manufactured in such a manner the (1) after addition and agitation in slurry tanks with fertilizers,

lime seeds, and water, the fibers in the material will become uniformly suspended to form a homogeneous slurry and (2) the material, when hydraulically sprayed on the ground, will form a blotter-like ground cover impregnated uniformly with seed, will allow rainfall to percolate to the underlying soil. Wood cellulose shall only be used on areas that have been approved by WVDEP.

The wood cellulose fiber shall be supplied in packages having a gross weight not to exceed 100 pounds. Weight specifications of this material from suppliers, and for all applications, shall refer only to air dry weight of the fiber material. Air dry weight is based on the normal weight standard of the Technical Association of the Pulp and Paper Industry for Wood Cellulose and is considered equivalent to 10 percent moisture. Each package of the cellulose fiber shall be marked by the manufacturer to show the air dry weight content.

#### **6.2.5 Water**

Water shall be reasonably free of injurious and other toxic substances harmful to plant life. The source of water is subject to the approval of the WVDEP.

### **6.3 Construction Methods**

- 6.3.1** All revegetation activities shall be conducted immediately following completion of final grading so as to utilize the fine soil material as a seedbed before this material is lost via subsequent rainfall.
- 6.3.2** On sites where appropriate equipment can operate the seedbed shall be prepared by breaking up surface crusts and loosening the soil material to a minimum of three (3) inches. Disking, harrowing, cultipacking or other acceptable tillage operations may be used to prepare the seedbed. On sites where appropriate equipment cannot operate, the seedbed shall be prepared by “tracking in” with a dozer with a minimum of 1 ½”grouser depth or scarifying by other approved methods.
- 6.3.3** Lawn areas or areas being mowed shall be hand raked. Rocks larger than two inches (2”) in diameter, trash, weeds, and other debris that will interfere with seeding or maintenance shall be removed or disposed of as directed and approved by the Owner. After broadcasting or otherwise applying the seed mixture, the surface of the seedbed shall be raked, culti-packed, or very lightly brush dragged to insure seed contact with soil. Seedbed preparation shall be suspended when soil moisture conditions are not suitable for the preparation of a satisfactory seedbed as determined by Owner.
- 6.3.4** Seedbed preparation and seeding shall take place progressively as various re-graded areas are brought to final grade.
- 6.3.5** All seeding operations shall be performed immediately following seedbed

preparation in such a manner that the seed is applied in the specified quantities uniformly on the designated areas.

- 6.3.6** Seed Application shall consist of approved hydro seeding methods where feasible. Any seed left in hydro seeder overnight shall be re-inoculated before that seed shall be applied. Other methods of seed application may be utilized for site-specific reasons when approved by the WVDEP.
- a. Apply and incorporate fertilizer during seedbed preparation.
  - b. Apply fertilizer in hydro seeding mixture following seedbed preparation.
- 6.3.7** Any area failing to establish a vegetative stand due to weather or adverse soil conditions shall be reseeded, re-limed, re-fertilized and re-mulched as approved by the WVDEP.
- 6.3.8** The Contractor shall maintain all seeded areas until final acceptance of the project. All areas shall be protected from any further equipment traffic and any damaged areas shall be repaired and reseeded. Maintaining seeded areas shall consist of watering, refilling, re-fertilizing, re-liming, re-seeding, and re-mulching erosion gullies and all bare areas.
- 6.3.9** Lime rate shall be formulated from soil test results. In the absence of soil testing, a rate of three (3) tons per acre will serve as a preferred minimum.
- 6.3.10** Satisfactory soil is considered to be reasonably free of subsoil, clay clumps, stones and other objects over four (4) inches in one dimension, and shall be free of objectionable material.
- 6.3.11** A second and third seeding will be applied as needed, or as approved by the WVDEP.

**6.3.11.1 Second Step Seeding**

The second step seeding will take place during the first defined seeding period following the initial seeding. No payment shall be made for second step seeding, this work is part of the contract if completed before the final inspection or shall be considered warranty if completed after the final inspection. The following shall be used as a guide for second step application.

- a. For areas with less than a 50 percent stand or subject to severe erosion, apply the complete amount of seed, fertilizer, lime much as specified.
- b. For areas with over 50 percent stand apply one half the original fertilizer, lime and seed. If erosion is a problem, apply one half

of the original mulch specified in **Section 6.2.4**.

#### **6.3.11.2 Third Step Seeding**

The third step seeding shall consist of spot applications on areas not showing a satisfactory stand. The seeding shall take place at the next defined seeding period following the second step application. The quantity of material to be used shall be determined on the same basis as the second step application in **Section 6.3.11.1**.

#### **6.4 Method of Measurement**

There shall be no distinction made for measurement or payment between lawn seed mixture application areas and permanent seed mixture application. The method of measurement for re-vegetation will be lump sum. Payment shall include all temporary seeding, lime, fertilizer, seed and mulch for the first seeding only. Subsequent seeding will not be measured or paid for but will be considered incidental to initial seeding.

The Contractor shall be paid only for those areas disturbed and re-vegetated during operations necessary for completion of the work. The quantity shall not include areas disturbed for storage facilities and staging areas unless prior approval was obtained from the WVDEP. No payment shall be made for any seeding conducted after the final inspection; this work is considered warranty.

#### **6.5 Basis of Payment**

**6.5.1** Payment will be made at the lump sum bid for these items, which price and payment shall be full compensation for doing all the work herein described in a workmanlike and acceptable manner; including the furnishing of all labor, materials, tools, equipment, supplies and incidentals as necessary to complete the work. Payment for seeding includes all seeding (i.e. – temporary, first and second seeding). No additional payment will be made for second or third seeding.

**6.5.2** Temporary seeding will be incidental to the seeding item and no separate measurement or payment will be made for temporary seeding. There will be no separate payment for maintaining seeded areas. No payment will be made for seeding after the final inspection. All work performed after the final inspection will be done under warranty.

#### **6.6 Pay Items**

**Item 6.0 “Revegetation”, lump sum.**

## 7.0 DRAINAGE STRUCTURES

### 7.1 Description

This work shall consist of furnishing all labor, equipment and materials necessary to construct the drainage structures shown on the drawings and as specified herein. The work shall include but are not be limited to channels, culverts, pipes, manholes, cleanouts, splash pads, anchors and/or keys, underdrains and associated appurtenances. The pooled area in front of the mine openings shall be dewatered with care in order to minimize impacts to the existing and constructed waterways downstream. Excavated material shall be dried or rock placed in soft areas to stabilize the area.

### 7.2 Materials

7.2.1 Excavated Materials shall consist of in place natural ground and rock. All excavation shall be considered incidental to placement of drainage structures.

7.2.2 Riprap for Ditches shall consist of sound, d50 of 12-inches, non-acid producing, durable limestone or sandstone from a WVDEP approved source and shall match the gradation shown on the drawings.

7.2.3 All rock riprap used throughout the project site shall meet the following requirements. The rock riprap shall have a maximum weighted loss of thirty percent when subjected to five (5) cycles of the Sodium Sulfate Soundness Test – **ASTM C88** (ASTM C88-05 Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate), as modified by the American Association of State Highway and Transportation Officials (**AASHTO**) **T-104**. The use of on-site rock materials for riprap must have approval from the WVDEP and meet all standards for the riprap installation.

Shale shall not be used.

7.2.4 Grout to be used in the grouted riprap ditches shall consist of a mixture of one part Sulfate Resistant Type II Portland Cement and three parts sand, using water to produce a workable consistency. The amount of water shall be as approved or as designated by the WVDEP.

The minimum required compressive strength of the grout shall be 2000 psi @ 28 days. All testing shall be the responsibility of the contractor as part of **Section 3** of these specifications. Two sets (4 cylinders) of test cylinder per day shall serve as a minimum. Grout test cylinders shall be made and tested in general accordance with **ASTM C-31** and **C-39** respectively. One cylinder shall be tested at 7 days age, one test cylinder shall be tested at 14 days age, one test cylinder shall be tested at 28 days age and one cylinder shall be held as a spare.

7.2.5 Rock for Grout keys and Anchors shall be of the same type and size as the riprap utilized to construct the associated channel.

- 7.2.6** The stone for underdrain shall consist of sound, durable 3” to 6” non-calcareous sandstone. The stone shall consist of particles of clean, hard, tough, durable rock, free from adherent coating. Stone shall have a maximum weighted loss of twelve (12) percent when subjected to five (5) cycles of the Sodium Sulfate Soundness Test – **ASTM C88** (ASTM C88-05 Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate), as modified by the American Association of State Highway and Transportation Officials (**AASHTO**) **T-104**. Non-calcareous stone shall have an acid base accounting test to show the potential for acid producing material in the stone. A laboratory certification of soundness and acid base shall be submitted to the WVDEP prior to delivery.
- 7.2.7** Pipe bedding for underdrains shall consist of sound, durable AASHTO No. 1 non-calcareous stone. The stone shall consist of particles of clean, hard, tough, durable rock, free from adherent coating. Stone shall have a maximum weighted loss of twelve (12) percent when subjected to five (5) cycles of the Sodium Sulfate Soundness Test – **ASTM C88** (ASTM C88-05 Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate), as modified by the American Association of State Highway and Transportation Officials (**AASHTO**) **T-104**. Non-calcareous stone shall have an acid base accounting test to show the potential for acid producing material in the stone. A laboratory certification of soundness and acid base shall be submitted to the WVDEP prior to delivery.
- 7.2.8** The pipe for the underdrain shall consist of perforated 12-inch diameter PVC SDR 35 grade within the underdrain.
- 7.2.9** The underdrain conveyance pipe shall consist of non-perforated 12-inch diameter PVC SDR 35 grade within the underdrain.
- 7.2.10** Animal guards consisting of 3/8” stainless steel rods, nuts, and bolts as dimensioned on the plans shall be constructed and installed the same day as the pipe is placed and on the downstream end of the outlet pipe as detailed on the plans.
- 7.2.11** The “best clayey material available” is defined as on-site material having the most clay content, highest plasticity index, and free from rocks larger than 2” in any dimension as determined by visual examination and approved by the Engineer.
- 7.2.12** Filter fabric for the underdrain shall be non-woven type, Thrace Linq 140 EX filter fabric or approved equal.
- 7.2.13** The Channel Road Crossing shall be installed as shown on the plans. Class I stone shall be placed to choke off the voids to allow vehicle access.



### 7.3 Construction Methods

7.3.1 The Contractor shall comply with **Special Provision V “Schedule of Work”** and **Special Provision XIII “Permits, Licenses and Fees”**. The sequence of operations shall be at the discretion of the Contractor. However, at a minimum, water shall not be allowed to enter into or pool in constructed ditches, installed pipes, drop inlets, subsurface drains, or channel installations until all components have been installed and are operational, curing times have been achieved, and the constructions have been approved by the Owner. Work shall proceed downstream to upstream, bringing the site to grade and installing drainage control structures channels shall be constructed to the approximate line, grade, and templates as shown on the plans or as directed by the WVDEP. Excess material from channel and pipe trench excavation that is suitable for soil cover may be segregated, stockpiled and utilized to supplement “Revegetation” operations. Otherwise, excess material from ditch and pipe trench excavation will be required to be disposed of by the Contractor in an offsite disposal area obtained by the Contractor in accordance with **Section VIII** of the Special Provisions for these specifications. Sections of channels that are cut to rock shall not require lining but shall be paid the appropriate size of that channel.

7.3.2 Prior to installing drainage facility linings, the sub-grade/sub-base of the drainage facility shall be inspected and approved by the Engineer.

7.3.2.1 Some drainage facilities (ditches) will be constructed in designed Contractor constructed fill areas. In these areas, the fill shall be and brought to final grade elevations shown on the Plans and in the cross sections. The subgrade of the facility shall then be excavated into the compacted fill to template dimensions and to accept required lining components.

7.3.2.1.1 Prior to drainage facility component (leveling stone, erosion control blanket lining, rock riprap, or grouted rock riprap) installation, the subgrade shall be prepared by removing all objectionable material (including existing riprap, iron precipitate and soft, unconsolidated material) to the satisfaction of the Owner. In the event coal or coal refuse is encountered such material will be undercut a minimum of 12” and replaced with onsite suitable compacted material and approved by the Owner prior to installing the lining. The coal seam may be encountered in the construction and installation. Excavated coal or coal refuse shall be deposited onsite in an area approved by the Engineer and beneath 12”, minimum, of select onsite material. All subgrade areas shall be compacted to the satisfaction of the Owner.

7.3.2.1.2 If in the opinion of the Owner the subgrade is unsuitable, the Contractor will be required to undercut the subgrade a minimum of 2.0 feet and place compacted suitable on-site fill material and approved by the Owner in 6” compacted lifts back to subgrade elevations. In addition, some filling may be required after removing all objectionable material



(including existing riprap, iron precipitate and soft, unconsolidated material) to bring the subgrade to proper elevations depicted on the Plans.

**7.3.3** The ditches shall be constructed to the lines, grades, and templates shown on the plans or as directed and approved by the Owner. Ditches shall be rock riprap lined or grouted rock riprap lined as shown on the plans.

**7.3.3.1** Ditches and swales that receive vegetative lining shall be constructed to the lines and grades shown on the plan. Seed bed preparation and other revegetation requirements shall meet the requirements set forth in **Specification 6**. In the event coal or coal refuse is encountered such material will be undercut a minimum of 12” and replaced with onsite suitable compacted material capable of supporting vegetation prior to ditch lining installation.

**7.3.3.2** Drainage channels that receive grouted rock riprap lining are shown on the Plans.

**7.3.3.2.1** Where drainage facilities are to receive grouted rock riprap, the subgrade shall be excavated so that the final grades, grouted riprap size and thickness, and dimensions will agree with those on the plans. Grouted riprap linings shall be placed so top of grouted riprap in drainage facilities blend to adjacent, final grades. Grouted riprap linings shall not be indiscriminately placed atop final grades. Grouted riprap drainage facilities subgrade shall be prepared in accordance with **Specification 7.3.2**. Where coal or coal refuse is encountered, the ditch subgrade shall be undercut 12”, minimum, with compacted select material approved by the Engineer placed in the excavation to achieve subgrade elevations.

**7.3.3.2.2** Riprap shall be placed to its required thickness without damaging or displacing the underlying subgrade. Some hand placing of riprap may be required around pipes and other encountered obstructions.

**7.3.3.2.3** Grouted riprap shall be installed at an elevation 1.0 foot, minimum, above the top of all pipes (either installed or existing) and on both the inlet (upstream) and outlet (downstream) ends of the pipes. The 1.0 foot, minimum, cover requirement shall transition to normal ditch depths ten feet (10’) from the upstream and downstream ends of the pipe as shown on the plan profiles.

**7.3.3.2.4** Prior to grout placement the riprap shall be free of trash, debris, dirt, sticks, limbs, leaves or other objectionable material as determined by the Engineer. The Engineer shall approve the riprap prior to grout application. Grout, where required to be placed on riprap, shall be applied as soon as possible after placement of riprap. The stone shall be

thoroughly wet immediately before grout is applied. As soon as grout is deposited on the surface it shall be thoroughly worked into the joints to achieve 100 percent penetration. The stones shall then be brushed so that the top surfaces are exposed. The grout shall be protected from running water to prevent damage until sufficiently cured. Water shall not be allowed to flow beneath grouted channels. Contractor must control the water to prevent damage to grouted channels.

**7.3.3.2.5** Curing shall be accomplished by one of two means. A liquid membrane-forming compound for curing concrete may be sprayed on the brushed grouted surface. Curing compounds shall conform to the requirements of **Section 707.9** of the **WVDOH Standard Specifications for Roads and Bridges**, Adopted 2010. Alternately, the grouted surface may be covered with white polyethylene sheeting (film) for curing concrete immediately after the stones have been brushed. The sheeting shall conform to the requirements of **Section 707.10** of the **WVDOH Standard Specifications for Roads and Bridges**, Adopted 2010. Grouting of drainage facilities shall not be initiated unless adequate materials for curing the grouted drainage facilities are available on-site. Curing by liquid membrane-forming compound shall be left for 72 hours prior to introduction of water. Likewise, grouted riprap shall remain covered for 72 hours prior to sheeting removal and introduction of water.

**7.3.3.2.6** A set of four (4) compressive strength test cylinders shall be taken in AM and PM during installation or as directed by the engineer. One seven-day, one fourteen day, one twenty-eight day and one reserve cylinder are required. The sampling for strength tests shall be in accordance with **ASTM C 172**. Cylinders for acceptance tests shall be molded and cured in accordance with **ASTM C 31**. Cylinders shall be tested in accordance with **ASTM C 39**. The acceptability of the grout will be determined by laboratory tests and/ or visual inspection as required by the WVDEP. Grout specified on the basis of compressive strength will be considered satisfactory if the average of all strength test results equal or exceed the specified strength and no individual strength test falls below the required strength by more than 200 psi.

**7.3.3.3** A Grout Key shall be installed at the upstream end of each grouted riprap channel or on a cold joint to direct the flow of water into the channel and prevent undercutting of the grouted riprap. The grout key shall be installed to the dimensions depicted by the typical detail in the plans. The grout keys shall be incidental to the construction of the channel construction.

**7.3.3.3.1** The grouted riprap key shall be as dimensioned on the Plans, shall extend 3.0 feet, minimum from the downstream bottom of the proposed ditch lining at the downstream edge of the key, and installed to the lines and grades and at the locations shown on the plans.

7.3.3.3.2 After excavating the Grout Key to the dimensions shown on the plans, place grout in the excavation to the channel subgrade prior to placing the riprap. Riprap shall then be placed into the grout to the lines and grades shown on the plans.

7.3.4 The Contractor will be required to construct Underdrains dimensioned on the plans and **as conditions warrant** and as located and directed by the Owner as field conditions warrant. Materials shall conform to those listed below. The length of the 12-inch diameter pipes and associated clean-outs may vary based on the conditions encountered at the time of construction excavation and final grades that are achieved. The maximum run allowable of conveyance pipe without installation of a cleanout shall be 150 feet.

7.3.4.1 Underdrain Conveyance Pipes shall consist of custom perforated (as shown on the plans) and solid 12 inch diameter SDR35 PVC pipes and necessary 12 inch diameter connectors, bends, and caps as required to complete the installations or as deemed necessary by the Owner. The 12 inch SDR-35 PVC pipes shall be installed at the locations shown on the plans. The Contractor may be required to construct and install Subsurface Drains as dimensioned on the plans **and as conditions warrant** during excavation operations to collect and divert encountered groundwater to constructed or existing drainage structures as designated and approved by the Owner.

7.3.4.2 Trench width, depth, line and grade, shall be as indicated on the typical details and provided in the plans. Trenching will involve excavation of in-place material including soil and rock. Trench bottom shall be thoroughly cleaned of any rock debris prior to the placement of the pipe.

7.3.4.3 Trench excavation exceeding 5 feet in depth shall be supported with suitable shoring or sides of the excavation shall be cut to stable slopes as recommended in the OSHA Publication "Excavating and Trenching Operations", **OSHA 1926** to prevent caving, slipping or cracking of the sides to protect workmen from any injury. Any shoring installed shall be removed following backfilling the trench.

7.3.4.4 Pipe bedding for the unperforated 12 inch SDR 35 PVC pipe shall be Class B bedding. The bedding shall be placed at the bottom of the trench and shall be properly shaped to receive the pipe prior to placement. The trench shall be kept dry during installation of the pipe.

7.3.4.5 Once the trench is excavated and prepared for component placement to the satisfaction of the Owner, filter fabric shall be placed in the trench bottom and along the trench side opposite the seep inflow. Sufficient fabric shall be placed to fully cover the trench bottom width, downhill side of the trench, and the trench top width to include overlap dimensions

shown on the plans.

- 7.3.4.6** Pipe bedding for perforated 12 inch SDR 35 PVC pipe shall be four inches (4") of AASHTO No.1 stone meeting the requirements of **Specification 7.2.12** and shall be installed in the trench atop the fabric. The perforated pipes shall be installed atop the 4" layer of AASHTO No. 1 stone. A 12" diameter custom perforated end cap shall be installed on the upstream end of the piping system. If in the opinion of the Owner, 3" to 6" stone placement or pipe placement has caused displacement or damage to the underlying filter fabric or sub-base, the Contractor shall remove the pipe and 3" to 6" stone and repair the displacement or damage and/or replace the fabric and 3" to 6" stone or pipe to the satisfaction of the Owner. All costs associated with the removal of 3" to 6" stone and pipe and necessary repair work shall be borne by the Contractor and at no cost to the Owner.
- 7.3.4.7** The 3" to 6" stone shall be installed in the trench atop the pipe to the dimensions shown on the Plans. If in the opinion of the Owner, stone placement has caused displacement or damage to the underlying sub-base, filter fabric or pipe, the Contractor shall remove the stone and repair the displacement or damage and/or replace the fabric, pipe, and stone to the satisfaction of the Owner. All costs associated with the removal of stone, pipe, and fabric and necessary repair work shall be borne by the Contractor and at no cost to the Owner.
- 7.3.4.8** After the subsurface drain thickness has been achieved, the Contractor shall wrap the filter fabric across the top of the installed stone with overlaps of 12", minimum, at every joint.
- 7.3.4.9** The Contractor will then place sufficient compacted fill material on top of the subsurface drain to elevations and grades shown on the Plans or as directed by the Owner. At a minimum, a 1.5 foot clearance shall be maintained between the top of the subsurface drain and revegetated final grades. The top six inches (6") of the drain cover shall not be compacted but shall be prepared for vegetation in accordance with **Specification 6.0**.
- 7.3.4.10** For subsurface drains longer than 150 feet, or as shown on the plans or at the direction of the Owner, the Contractor will be required to install a cleanout along the drain alignment. Cleanouts shall consist of 45° "wyes" extending from the perforated subsurface drain pipe to finished grades. The "wye" alignment shall project along the flow of the pipe so cleaning operations will be concentrated at the downstream end of any potential plug. Cleanouts shall meet the requirements of the plan detail.
- 7.3.4.11** Perforated pipe shall end at the downstream end of 3" to 6" stone placement. From this point to the drainage structure receiving the subsurface drain discharge, solid 12" SDR35 PVC conveyance pipe shall

be installed and backfilled with the “best on-site clayey material” available. The outlet elevation of the pipe shall be 1.0 foot, minimum, above the flow line of the receiving drainage structure.

- 7.3.5 Existing ditches located within the project limits shall be cleaned to conform to the template provided in the plan details to provide positive drainage to the inverts of the downstream structures and ensure free flowing conditions within the ditch as directed by the Engineer, at the locations identified on the plans. The ditch cleanings shall be disposed of on site in a location approved by the Engineer or off site in accordance with **Sections VII and VIII** of the Special Provisions of these Specifications. The erosion control matting for the ditch shall be installed in accordance with the manufacturer’s recommendations.
- 7.3.6 The “**RipRap “Vee” Channel Road Crossing**” shall be installed as shown on the plans.
- 7.3.7 The pooled area in front of the mine openings shall be dewatered with care in order to minimize impacts to the existing and constructed waterways downstream. Excavated material shall be dried or rock placed in soft areas to stabilize the area.

#### 7.4 Method of Measurement

- 7.4.1 The method of measurement for “**10 Ft. Rock Riprap “VEE” Channel**” shall be on a linear foot basis measured along the flow line of the channel.
- 7.4.2 The method of measurement for “**6 Ft. Grouted Riprap “VEE” Channel**” shall be on a linear foot basis measured along the flow line of the channel. Grout keys and anchors shall be considered part of the channel in which they are located and not as a separate item.
- 7.4.3 The method of measurement of the “**RipRap “Vee” Channel Road Crossing**” shall be per each.
- 7.4.4 The method of measurement for constructing “**4’ x 4’ Underdrain**” shall be on a linear foot basis measured along the centerline of the underdrain. Excavation necessary to construct the underdrain; furnishing and placement of the 3” to 6” non-calcareous sandstone, filter fabric and all other work necessary for the acceptable installation of the underdrain will not be measured but shall be considered incidental to the construction of the respective underdrains. The cost of these incidental items shall be included in the unit price bid for the underdrain.
- 7.4.5 The method of measurement for the construction of the un-perforated PVC SDR-35 “**Underdrain Conveyance Pipe**” shall be on a linear foot basis of the un-perforated pipe as measured from the end of the last joint of perforated pipe. Trench excavation, furnishing and placement of the pipe and fittings, compacted on-site backfill, minor grading, including all ancillary materials and operations required to construct the drainage conveyance pipes, will not be measured, but

shall be considered incidental to this construction.

## **7.5 Basis of Payment**

- 7.5.1** The unit price for the **“10 Ft. Rock Riprap “VEE” Channel”** shall include excavation, purchase and placement of rock and grout, grout keys, grout anchors, and all equipment, material and labor necessary for their installation. Payment shall be full compensation for doing all the work herein prescribed in a workmanlike and acceptable manner as specified and shown on the plans.
- 7.5.2** The unit price for the **“6 Ft. Grouted Riprap “VEE” Channel”** shall include excavation, purchase and placement of rock and grout, grout keys, grout anchors, and all equipment, material and labor necessary for their installation. Payment shall be full compensation for doing all the work herein prescribed in a workmanlike and acceptable manner as specified and shown on the plans.
- 7.5.3** The unit price for the **“Riprap “Vee” Channel Road Crossing”** shall include excavation, purchase and placement of riprap rock and all equipment, material and labor necessary for their installation.
- 7.5.4** The unit price for the **“4’ x 4’ Underdrain”** shall include the excavation of the trench, the pipe, stone and filter fabric required to install the underdrain and all the material and equipment necessary to complete the installation.
- 7.5.5** The unit price for the **“Underdrain Conveyance Pipe”** shall include the excavation of the trench, the pipe and all the material and equipment necessary to complete the installation.

## **7.6 Pay Items**

- 7.1, “10 Ft. Rock Riprap “VEE” Channel”**, per linear foot.
- 7.2, “6 Ft. Grouted Riprap “VEE” Channel”**, per linear foot.
- 7.3, “Riprap “Vee” Channel Road Crossing”**, per each.
- 7.4, “4’ x 4’ Underdrain”**, per linear foot.
- 7.5, “Underdrain Conveyance Pipe”**, per linear foot.



## **8.0 UNCLASSIFIED EXCAVATION**

### **8.1 Description**

This work shall consist of excavating, transporting, stockpiling, placing and compacting mine spoil, soil, rock, coal refuse or other materials encountered in the re-grading, backfill and any other indicated incidental work. Rock and soil shall be classified as unclassified excavation. This work shall include regrading of existing slide areas to a 2:1 slope.

### **8.2 Materials**

On-site soil encountered in areas of proposed disturbance should be utilized for later revegetation whenever possible. The soil materials present in all areas to be excavated or filled shall be gathered and stockpiled in a suitable location, at the discretion of the WVDEP. Where required, strip soil to whatever depths encountered in a manner to prevent intermixing with underlying subsoils. Disturbance of the subsoils shall be minimized whenever possible. Remove heavy growths of grass from areas before stripping. Stockpile soil in storage piles in an area that will not create slope instability to provide free drainage of surface water. Cover stockpiles or use temporary seeding if necessary, to prevent erosion.

The regrading plan shall be conducted in a manner such that a 12- inch thick layer of soil material is uniformly spread over any areas of exposed refuse or unsuitable material resulting from the regrading operation. The soil cover shall not be compacted to the specifications stated for fill compaction, but shall be placed in a manner to allow for proper establishment of vegetation as described in the seedbed preparation portion of the Revegetation specifications. The required soil amendments are to be incorporated into this top-dressing material while it is in a loose state, to facilitate proper mixing of these materials within the soil matrix. The soil cover shall then be prepared by tracking-in with a dozer perpendicular to the slope. The WVDEP may require that the soil cover be scarified prior to seeding if compaction is considered excessive or if rills develop.

### **8.3 Borrow/Disposal Area**

It is NOT anticipated that the excavating and/or regrading operations will require the use of soil borrow areas as per **Section 8.4** of these specifications. However, if off site borrow/disposal areas should be necessary to provide for material shortages or excess material disposal, then the Contractor is responsible for locating these areas and obtaining right-of-entry agreements in which the property owner indemnifies and holds WVDEP/OSMRE harmless from any injury or damage whatsoever resulting from the Contractor's use of the property. All prospective Contractors and Bidders must obtain their own permission from the landowner for any subsurface tests, borings, or pits. The Contractor shall be held responsible for compliance with all NEPA and NPDES requirements and shall provide proof of such compliance to the WVDEP. The Contractor shall submit a reclamation plan to the WVDEP and must obtain approval for said plan

prior to any disturbance to the disposal site.

#### **8.4 Soil Cover**

This work consists of covering all areas reaching final grade with a 1-foot thick layer of suitable soil material. The soil shall be obtained in conjunction with clearing and grubbing operations, regrading of the slide area, drainage feature excavation, and/or from designated or determined soil borrow areas, both on or off-site. A minimum of 12 inches of soil material shall be placed over all refuse encountered during construction. Excavation of soil cover shall be as per **Section 8.5.1**. It is anticipated an adequate amount of soil cover will be available on-site. However, the Contractor is responsible for securing an off-site borrow area in the event that adequate soil is not available on site at no additional cost to WVDEP. If, during the course of construction, the need for off-site borrow areas becomes evident, the Contractor shall obtain prior approval from the WVDEP for such borrowing and the borrow area must comply with the attached NEPA regulations. The Contractor shall obtain Right-of-Entry Agreements for any soil or rock borrow areas outside the construction limits which provide for entry by the WVDEP and OSM for inspection purposes, with such agreements stating that the property owner(s) indemnifies and holds the WVDEP and OSM harmless from injury or damage whatsoever resulting from the use of the property.

#### **8.5 Construction Methods**

##### **8.5.1 Excavation**

Material excavation shall consist of the required removal of materials from the areas shown and the sloping and finishing of the areas to the required lines and grades as shown on the drawings. The slopes may be varied only by permission of the WVDEP. Any excavation beyond planned grades will not be paid for unless prior authorization is obtained from the Engineer. Slopes shall be trimmed neatly to present a uniform surface, free from hollows and protrusions and loose or overhanging rocks. The tops of all slopes shall be rounded to form a smooth, uniform transition to the existing ground. Areas cut to grade in refuse are to be undercut one foot below the final grades shown on the reclamation plan with final grades achieved by placing one foot of soil cover material atop the undercut areas.

The reclamation approach described in these construction specifications is intended to provide a lasting, stable configuration. The Contractor is required to exercise care to avoid conditions which may result in unstable conditions during the construction process. The Contractor shall be responsible for protecting residences from damage.

The Contractor must utilize material removal techniques, which are generally considered to be conducive to retaining slope stability. Additionally, disturbed slopes shall be brought to the design template as soon as practical and shall be protected in accordance with **Section 6**, "Revegetation".



### 8.5.2 Material Placement

Depositing and compacting fill in layers shall be started at the lowest point in the fill below grade, at the bottom of ravines and at the toe of the slope on side hills fills. Prior to fill placement, existing foundation for the embankment will be proof-rolled and all unsuitable material, as determined by the WVDEP, will be removed. Rock that is found on site can be buried after the rock is broken into sizes less than 2 feet in any dimension. Broken rock shall not be consolidated in one area, but shall be dispersed throughout the fill areas to ensure that compaction requirements are achieved. The area around the rock shall be well compacted before proceeding to the next backfill lift.

Excavated material shall be placed in embankments in successive layers not to exceed one (1) foot in thickness before compaction. The layers shall be constructed approximately horizontal. Each layer, before starting the next, shall be leveled and smoothed by means of power driven graders, dozers, or other suitable equipment with adequate weight, capacity, and power to do the work. Layers shall be extended across the entire fill at the level of deposition unless otherwise authorized by the WVDEP. Each layer, before starting the next, shall be compacted.

Fill materials to be used in any area of an embankment shall be free from trash, debris, frozen soil, organic material or other foreign material.

Embankment fill and embankment subgrade materials shall be compacted to at least 90% of Standard Proctor maximum dry density at a moisture content of not less than 2% below nor greater than 3% above optimum. Testing shall be at a frequency approved by the engineer. One lot (5 tests) per day during fill placement shall serve as a minimum. When material on the project has changed and compaction is no longer at 90% a new standard proctor shall be required before using the new material.

Embankment fill material which does not contain sufficient moisture to be compacted to the requirements specified herein shall receive applications of water necessary for compaction. Water shall be applied with suitable sprinkling devices and shall be thoroughly incorporated into the material which is to be compacted. Embankment fill material which contains excess moisture shall be dried prior to compaction. Sufficient discing equipment shall be continuously available at the site and shall be used to add water or remove excess moisture from fill materials.

At the close of each day's work, or when work is to be stopped for a period of time, the entire surface of the compacted fill shall be sealed by a method approved by the engineer. If, after a prolonged rainfall, the soil is too wet and plastic to work properly, the top material shall be removed to expose firm material. Ruts in the surface of any layer shall be suitably filled or eliminated by grading before compaction. The disturbed areas will be revegetated according to **Section 6, "Revegetation"**.

## 8.6 Method of Measurement

- 8.6.1** There shall be no method of measurement for unclassified excavation defined by proposed final grades and cross sections shown on the plans and herein specified. Unclassified excavation shall include excavating, placing excavated material, stockpiling, and placement of all topsoil, soil, and soil covering operations (unless specified otherwise) and excavated materials as shown on the plans, breaking of boulders and placing boulders in fill areas, and special handling, undercutting at final grades and soil covering, burying, and entombing of coal, coal refuse, and black or dark gray shale.
- 8.6.2** Soil cover shall be obtained as detailed in **Specification 8.4**. No measurement shall be required and soil cover shall be considered incidental. It is anticipated that material encountered during excavation operations shall produce sufficient suitable soil material for use as soil cover.
- 8.6.3** The method of measurement for liming, fertilizing, seeding and mulching soil borrow areas located within the construction limits as addressed in this item is to be included under **Section 6.0, "Revegetation"**, as contained elsewhere in these specifications.
- 8.6.4** There is no method of measurement for finding and developing an Owner approved off-site soil borrow area (if required) as all costs associated with this task including necessary reclamation plans, all permits and any delays occasioned by permit work and approvals, sediment and erosion control, backfilling, and revegetation shall be included in and considered incidental.
- 8.6.5** Excavation of unclassified materials for ditch, pipe, and inlet installations shall not be included for payment, but shall be included in **Specification 7.0, Drainage Structures** in the unit price bid for the drainage ditch, pipe, or inlet. Disposal of excess material from ditch, pipe, or inlet installations shall be considered incidental to and included in the unit price bid for the drainage ditch, pipe, or inlet found in **Specification 7.0, Drainage Structures**. Excavation and placement of materials for undercutting and placing compacted backfill beneath drainage ditches, pipes or inlets shall not be included for payment, but shall be included in **Specification 7.0, Drainage Structures** in the unit price bid for the drainage ditch, pipe, or inlet.
- 8.6.6** Excavation and placement of materials to upgrade, repair, and maintain access roads and driveways shall not be included for payment, but shall be considered incidental to **Item 4.1 "Site Preparation"**.

## 8.7 Basis of Payment

Unclassified Excavation is considered incidental to the project.

**8.8 Pay Item**

There is no pay item for Unclassified Excavation.

## 9.0 MINE SEALS

### 9.1 Description

This work shall consist of dewatering the existing mine pool, excavating the mine openings, removing any existing mine seals, installing the gravel bulkhead wet mine seals or modified wet seals, and backfilling the opening as shown on the drawings. It shall be constructed in accordance with the typical details at the locations shown on the plans. Materials shall conform to those listed below. The length of the conveyance pipes and associated clean-outs may vary based on the conditions revealed at the time of construction and the final grades that are achieved. The maximum run allowable of conveyance pipe without installation of cleanouts shall be 150 feet. Wet/Modified mine seals will be constructed at the locations shown on the plans. All installed Piezometers will be removed and abandoned.

### 9.2 Materials

- 9.2.1** The stone shall consist of sound, durable 3” to 6” non-calcareous crushed sandstone. Crushed stone shall consist of particles of clean, hard, tough, durable rock, free from adherent coating. Stone shall have a maximum weighted loss of thirty (30) percent when subjected to five (5) cycles of the Sodium Sulfate Soundness Test – **ASTM C88** (ASTM C88-05 Standard Test Method for Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate), as modified by the American Association of State Highway and Transportation Officials (**AASHTO**) **T-104**. Non-calcareous stone shall have an acid base accounting test to show the potential for acid producing material in the stone. A laboratory certification of soundness and acid base shall be submitted to the WVDEP prior to delivery.
- 9.2.2** Filter fabric shall be non-woven type, Thrace Linq 140 EX filter fabric or approved equal.
- 9.2.3** Wet/Modified Mine Seal outlet pipes shall consist of custom perforated 12 inch diameter PVC SDR 35 grade extending a minimum of two (2) joints into the mine and through the stone bulkhead as shown on the Plans. The riser component for two (2) of the seal components (with 18 inch diameter custom perforated end cap) and perforated stub (with 12inch diameter custom perforated end cap) and for the other component shall also be custom perforated 12 inch diameter PVC SDR 35. Wet Mine Seal Outlet pipes shall extend from one foot (1.0’) inside the downstream edge of the stone bulkhead to the receiving outlet ditches surrounded by the “best on site clayey material” from subgrade to the bottom of the mine seal. Animal guards shall be constructed and installed on the downstream end of each of the outlet pipes as detailed on the Plans. Clean outs, if required, shall be installed along the two (2) outlet pipe alignments and shall consist of necessary wye fittings

and connections compatible with SDR 35 PVC pipe and extending from the outlet pipe to final grades shown on the Plans.

- 9.2.4 Pipe Bedding material shall consist of fine aggregate meeting the requirements of **Section 704.6 of the WVDOH Standard Specifications for Roads and Bridges**, Adopted 2010, except that the gradation shall meet the requirements of **Section 702.6 of the WVDOH Standard Specifications for Roads and Bridges**, Adopted 2010.
- 9.2.5 The “best clayey material available” is defined as on-site material having the most clay content, highest plasticity index, and free from rocks larger than 2” in any dimension as determined by visual examination and approved by the Engineer
- 9.2.6 Animal guards consisting of 3/8” stainless steel rods, nuts, and bolts as dimensioned on the plans shall be constructed and installed the same day as the pipe is placed and on the downstream end of the outlet pipe as detailed on the plans.

### 9.3 **Construction Methods**

- 9.3.1 Excavation of the mine opening shall proceed in a manner which will control the release of the mine pool. The opening shall be cleaned of debris to the satisfaction of the Engineer. Once the opening has been cleaned, a minimum 6" layer of stone shall be placed as pipe bedding. The pipes with risers shall be attached to steel plates and placed in the openings as shown on the attached Plans. The Gravel Bulkhead will be constructed and covered with one layer of Filter Fabric and compacted clay and soil cover as shown on the Plans. Solid pipe shall extend from the mine seal to a riprap channel discharging one foot above the invert of the channel. All pipes shall have a minimum grade of 2 percent.

The Contractor shall be solely responsible for any damages caused by dewatering activities.

- 9.3.2 A Dewatering Plan shall be submitted and approved by the engineer prior to any work taking place. The Contractor shall install and operate a water treatment system utilizing soda ash briquettes in a manner approved by the engineer to maintain a pH between 6.0 and 9.0 in all water above base flow while dewatering mine. Anytime a mine portal is being dewatered a call must be made to the spill hotline at 1-800-642-3074 to advise of the work being performed. Contractor must get either a confirmation number or a name of the person taking the call.
- 9.3.3 The wet mine seals and modified mine seals will require excavation into the mine entries/collapsed portals for proper installation. The Contractor shall perform this work after taking all necessary precautions with regard to control and treatment of the impounded water, with all work being performed at the risk of the Contractor. The WVDEP accepts no responsibility or liability for any related construction activities. A dewatering plan shall be submitted to the WVDEP for approval prior to seal construction.

Construction of wet mine seals or modified mine seals shall be in accordance with the plan details. Filter fabric shall separate all aggregate/soil interfaces. The clay seal and pipe outlet trenches shall be compacted to 90% Standard Proctor unless otherwise noted on the plans and specs. The Contractor shall adhere to **OSHA Regulation 29 CFR Part 1926** during all excavation and trenching activities.

- 9.3.4** Piezometer Abandonment: Temporary piezometers which have been installed for Contractor use must be removed and abandoned by a person who has been certified by the State of West Virginia in accordance with **47CSR59 “Monitoring Well Regulations”**. This certification is necessary for any person to operate in the State of West Virginia and includes construction, installation, alteration and/or abandonment of any monitoring wells and select boreholes.

#### **9.4 Method of Measurement**

- 9.4.1** Wet Mine Seals shall be measured per mine seal installed and shall include all excavation, disposal, dewatering, stone, filter fabric, and pipe necessary to complete the seal. The end of the mine seal shall be considered to be at the end of the outlet pipe where it outlets from the clay seal barrier. If solid pipe is required to convey the mine discharge to the collection channel, then it shall begin at the end of the mine seal and shall be considered to be conveyance pipe.
- 9.4.2** Modified Mine Seals shall be measured per modified seal installed and shall include excavation, disposal, dewatering, stone, filter fabric, and pipe necessary to complete the seal. The mine seal shall be considered to end at a point extending for a length of two (2) pipe joints from where the SDR 35 pipe that lies within the mine seal connects to the 90 degree elbow. Solid pipe extending from the end of the mine seal to the drainage channel shall be considered to be conveyance pipe and shall begin where identified on the plan drawings or as approved by the engineer in the field if field adjustments are necessary.
- 9.4.3** The method of measurement for the construction of **Item 9.2, “Mine Seal Conveyance Pipe”** shall be on a linear foot basis of the un-perforated pipe as measured from clay cut-off to the downstream pipe outlet acceptably installed and measured in place per single run of pipe. Trench excavation, furnishing and placement of the pipe and fittings, any necessary cleanouts, compacted on-site backfill, riprap apron where required at pipe outlet or ultimate drainage discharge, and minor grading, including all ancillary materials and operations required to construct the drainage conveyance pipes, will not be measured, but shall be considered incidental to this construction.
- 9.4.4** **Item 9.3, “Soda Ash Briquettes”** shall be measured per 50# bag used.

## 9.5 Basis of Payment

- 9.5.1 The unit price for **Item 9.1, "Wet/Modified Mine Seal"** with foam backfill shall include the excavation, stone, filter fabric, removal of existing mine seals and disposal of all associated materials, and all equipment, material and labor necessary for their installation. Piezometer abandonment shall be considered incidental to this item.
- 9.5.2 The unit price for the **Item 9.2, "Mine Seal Conveyance Pipe"** shall include the excavation of the trench, the un-perforated pipe per linear foot and all the material and equipment necessary to complete the installation.
- 9.5.3 The unit price for **Item 9.3, "Soda Ash Briquettes (50 lb bag)"** shall be for each 50 pound bag used.

## 9.6 PAY ITEMS

**Item 9.1, "Wet/Modified Mine Seal"**, per each.

**Item 9.2, "Mine Seal Conveyance Pipe"**, per linear foot.

**Item 9.3, "Soda Ash Briquettes (50 lb bag)"**, per each.



## **10.0 UTILITIES**

### **10.1 Description**

This work shall consist of all necessary measures to relocate, maintain and protect all utilities within the limits of work specified herein and on the construction drawings.

The contractor shall notify the utility in writing at least fifteen (15) but preferably thirty (30) days prior to the time work within the area will be done.

The Contractor shall be responsible for making all necessary arrangements and/or performing all necessary work to the satisfaction of the affected utility company and/or the West Virginia Department of Highways in connection with any disturbances within their right-of-way or services.

The Contractor shall be solely responsible for locating all utilities within the limits of work. All damage made to existing utilities by the Contractor shall be the sole responsibility of the Contractor. In the event damage does occur, the Contractor shall notify the affected utility and the WVDEP immediately and make or have made all necessary repairs and bear the expenses thereof and resulting damage caused thereby.

The Contractor shall obtain right-of-entry and/or any necessary permits for repairs or relocation.

#### **Utility Companies Contacts**

Miss Utility of West Virginia 1-800-245-4848

### **10.2 Materials**

All materials used for utility related disturbance shall be in accordance with these specifications or as indicated by the affected utility.

### **10.3 Construction Methods**

All work shall be in accordance with these specifications or in accordance with those methods as indicated by the affected utility.

### **10.4 Method of Measurement**

The Contractor shall submit a written request to the Regional Engineer, with a cost estimate from the owner of the affected utility, for approval prior to initiating the relocation work. The cost for relocation of the utility shall be negotiated in good faith with the owner and shall not be deemed final until approved by the Regional Engineer. The Contractor shall be reimbursed the actual invoiced cost from the Owner of the utility.



## 11.0 TRAFFIC CONTROL

### 11.1 Description

This work shall consist of all necessary measures to maintain and to protect traffic; to protect the work in progress; to protect adjacent property from excess dust resulting from the construction area, and to maintain traffic through, around, or adjacent to the construction area, in accordance with these specifications or as directed by WVDEP.

### 11.2 Materials

All materials used for traffic control shall be in accordance with the current WV Division of Highways Manual “**Traffic Control for Streets and Highway Construction and Maintenance Operations.**”

### 11.3 Construction Methods

Control and protection of traffic through work areas shall comply with the current WV Division of Highways Manual “**Traffic Control for Streets and Highway Construction and Maintenance Operations**”. All traffic plans must be coordinated through the WVDOH.

The Contractor shall be responsible for developing a traffic control plan that complies with the WVDOH requirements. A copy of the traffic control operational plan and WVDOH’s approval of said plan shall be submitted to the WVDEP Representative for approval prior to its implementation. Access to residences shall be maintained during construction. The Contractor shall give the WVDOH seven (7) working days notice prior to the beginning of work so the public can be made aware of forthcoming construction activities.

### 11.4 Method of Measurement

The method of measurement for determining the quantity of work done as described above for Traffic Control work will not be a separate pay item, but will be considered incidental to all other work associated with the construction of this Project as described in these Specifications, and as shown on the Plans.

Permit fees and other miscellaneous associated costs associated with and required for any Traffic Control work shall also be considered incidental to all other work associated with the construction of this Project as described in these Specifications, and as shown on the Plans. No separate pay item exists for Traffic Control work.



April 11, 2013

Mr. Mike Cutright  
West Virginia Department of Environmental Protection  
Office of Abandoned Mine Lands and Reclamation  
101 Cambridge Place  
Bridgeport, WV 26330

RECEIVED

APR 15 2013

AML - Philippi Office

Subject: **SUBSURFACE INVESTIGATION**  
Pigtail Branch Drainage  
Logan County, West Virginia  
Work Directive #18, PO# DEP 15000  
NGE Project No. W13028

Dear Mr. Cutright:

In accordance with your request, we have performed a subsurface investigation for the subject project located in Logan County, West Virginia. Authorization to proceed with this project was provided by your written notice to proceed dated February 25, 2013.

This report presents the results of the field investigation performed to determine subsurface conditions at the subject site.

We appreciate the opportunity to assist you on this project and trust this report satisfies your needs at this time. Please feel free to contact us if you have any questions concerning this report, or if we can provide any further assistance.

Sincerely,

NGE, LLC

A handwritten signature in blue ink, appearing to read 'Charles E. Montgomery'.

Charles E. Montgomery, P.G.  
Project Manager

## **1.0 PROJECT DESCRIPTION**

The project consists of a subsurface investigation for the Pigtail Branch Drainage project located in Logan County, West Virginia. The objective of the investigation was to obtain subsurface data necessary for the design of remedial measures.

## **2.0 DRILLING AND SAMPLING PROCEDURES**

A total of five (5) borings were drilled at the subject project (Borings B-1, B-2, B-2A, B-3, and B-3A). The test borings were extended to depths ranging between 58.0 and 78.0 ft. below the ground surface. The test boring locations were chosen and staked by WVDEP personnel.

The test borings were drilled using a track-mounted rotary drilling rig equipped with 3-1/4 inch I.D. hollow stem augers. The soil overburden was augered without sampling to refusal on bedrock in all of the borings. Following refusal on bedrock, rock coring was performed using a diamond bit and double tube core barrel sampler. The borings were backfilled with auger cuttings upon completion. Piezometers consisting of 2.0 in. I.D. PVC were installed in Borings B-1, B-2 and B-3A following completion.

The auger cuttings and rock core samples were logged in the field by the drill crew. Soil and rock descriptions and other pertinent subsurface information are provided on the boring logs. The rock core recovery percentage and rock quality designation (RQD) values were measured in the field for each run of rock coring performed. The RQD is the percentage of rock cored which is retrieved in pieces four inches or greater in length. The RQD values can be compared to published information to quantify the quality of the bedrock.

## **3.0 SUBSURFACE CONDITIONS**

Test boring logs providing detailed information at each boring location are located in the back of this report. A summary of the subsurface conditions encountered at the site follows:

### **3.1 SOIL/BEDROCK CONDITIONS**

Soil overburden at the boring locations consisted primarily of sandy clay with rock fragments and sandstone boulders. The clay soil extended to the top of bedrock at depths ranging from approximately 10.0 to 15.0 ft. Beneath the soil overburden, bedrock consisted primarily of alternating layers of sandstone and shale, with some coal. Mine voids were encountered in Borings B-1, B-2 and B-3A. The voids ranged in thickness from approximately 4.1 to 6.5 ft. Some mine rubble was encountered in the voids, which may be indicative of partial collapse. Following completion of Borings B-1, B-2 and B-3A, piezometers equipped with 10 ft. of slotted screen were installed in the boreholes.





Project Name: **Pigtail Branch Drainage  
Logan County, West Virginia**

Project Number: **W13028**

**BORING NO.**  
**B-1**

Depth, feet	Sample Type	Symbol / USCS	Location:	Offset:	Recovery %	RQD	Penetration Blows / 6 inches	Silt and Clay %	PL(%)      NM(%)      LL(%)									
			Surface El.: ---															
					<b>MATERIAL DESCRIPTION</b>													
0 - 10			Brown <b>SANDY CLAY</b> with rock fragments and sandstone boulders															
10 - 28.0			Gray <b>SANDSTONE</b> , fine grained		10.0													
28.0 - 29.6			<b>COAL</b>															
29.6 - 37.0			Gray <b>SANDSTONE</b> with shale laminations															
37.0 - 37.7			- coal (37.0 - 37.7 ft.)															
37.7 - 40																		

BASIC NGE LOG W13028 LOGS.GPJ NGELOG.GDT 4/11/13

Completion Depth: **78.0 ft.**

Date Boring Started: **3/28/13**

Date Boring Completed: **3/28/13**

Engineer/Geologist: **CEM**

Driller: **NGE**

Remarks: **Water was noted at a depth of 8.0 ft. at boring completion**

Depth to Water @ 24 hrs.: ---



Project Name: **Pigtail Branch Drainage  
Logan County, West Virginia**

**BORING NO.**

Project Number: **W13028**

**B-1**

Depth, feet	Sample Type	Symbol / USCS	Location:	Offset:	Recovery %	RQD	Penetration Blows / 6 inches	Silt and Clay %	PL(%) NM(%) LL(%)					
			Surface El.: ---											
			Split Spoon              Shelby Tube Rock Core              Bag Sample											
			MATERIAL DESCRIPTION											
			Gray SANDSTONE with shale laminations		100	100								
45					100	100								
50					100	80								
55					55.5	100	76							
			Gray SHALE - lost drilling water return											
60			VOID		0	0								
65			SHALE		64.2	64	64							
70					71.0	100	13							
			COAL		73.8									
75			Gray SANDY SHALE		78.0	85	76							
			Bottom of Test Boring @ 78.0 ft. Piezometer installed @ 78.0 ft. w/10 ft. screen											

BASIC NGE LOG W13028 LOGS.GPJ NGELOGGDT 4/11/13

Completion Depth: **78.0 ft.**  
 Date Boring Started: **3/28/13**  
 Date Boring Completed: **3/28/13**  
 Engineer/Geologist: **CEM**  
 Driller: **NGE**

Remarks: **Water was noted at a depth of 8.0 ft. at boring completion**  
  
 Depth to Water @ 24 hrs.: ---





Project Name: **Pigtail Branch Drainage**  
**Logan County, West Virginia**

Project Number: **W13028**

**BORING NO.**  
**B-2**

Depth, feet	Sample Type	Symbol / USCS	Location:	Offset:	Recovery %	RQD	Penetration Blows / 6 inches	Silt and Clay %	PL(%)      NM(%)      LL(%)									
			Surface El.: ---						10	20	30	40						
			Split Spoon               Shelby Tube Rock Core               Bag Sample															
			<b>MATERIAL DESCRIPTION</b>															
0 - 15.0			Brown <b>SANDY CLAY</b> with rock fragments and sandstone boulders															
15.0 - 31.3			Gray <b>SANDSTONE</b>		93	93												
31.3 - 33.0			<b>COAL</b>															
33.0 - 66.0			Gray <b>SANDY SHALE</b>		100	98												
			- w/shale laminations from 23.5 ft.		100	84												
					100	95												

BASIC NGE LOG W13028 LOGS.GPJ NGELOG.GDT 4/10/13

Completion Depth: **66.0 ft.**

Date Boring Started: **3/27/13**

Date Boring Completed: **3/27/13**

Engineer/Geologist: **CEM**

Driller: **NGE**

Remarks:

Depth to Water @ 24 hrs.: ---



Project Name: **Pigtail Branch Drainage  
Logan County, West Virginia**

**BORING NO.**

Project Number: **W13028**

**B-2**

Depth, feet	Sample Type	Symbol / USCS	Location:	Offset:	Recovery %	RQD	Penetration Blows / 6 inches	Silt and Clay %	PL(%)      NM(%)      LL(%)									
			Surface El.: ---															
			Split Spoon                 Shelby Tube Rock Core                 Bag Sample															
<b>MATERIAL DESCRIPTION</b>																		
			Gray SANDY SHALE			100	86											
45						100	100											
50						100	86											
55			- lost drilling water return - several tool drops (56.0 - 57.5 ft.)			86	68											
			VOID															
60			- some mine gob (61.0 - 64.0 ft.)			22	10											
65			Gray SHALE			67	50											
			Bottom of Test Boring @ 66.0 ft. Piezometer installed @ 66.0 ft. w/10 ft. screen															
70																		
75																		
80																		

BASIC NGE LOG W13028 LOGS.GPJ NGELOG.GDT 4/10/13

Completion Depth:	<b>66.0 ft.</b>
Date Boring Started:	<b>3/27/13</b>
Date Boring Completed:	<b>3/27/13</b>
Engineer/Geologist:	<b>CEM</b>
Driller:	<b>NGE</b>

Remarks:

Depth to Water @ 24 hrs.: ---





Project Name: **Pigtail Branch Drainage  
Logan County, West Virginia**

**BORING NO.  
B-2A**

Project Number: **W13028**

Depth, feet	Sample Type	Symbol / USCS	Location:	Offset:	Recovery %	RQD	Penetration Blows / 6 inches	Silt and Clay %	PL(%)      NM(%)      LL(%)									
			Surface El.: ---															
									● SPT bpf									
			<b>MATERIAL DESCRIPTION</b>						10    20    30    40									
0 - 10.0			Brown <b>SANDY CLAY</b> with rock fragments and boulders															
10.0 - 30.3			Gray <b>SANDSTONE</b>		80	73												
30.3 - 32.3			COAL		100	100												
32.3 - 35.0			Gray <b>SANDY SHALE</b>		100	98												
35.0 - 40.0					96	78												
40.0 - 68.0					100	40												
68.0 - 68.0					100	96												

BASIC NGE LOG W13028 LOGS.GPJ NGELOG.GDT 4/10/13

Completion Depth: **68.0 ft.**  
 Date Boring Started: **3/27/13**  
 Date Boring Completed: **3/27/13**  
 Engineer/Geologist: **CEM**  
 Driller: **NGE**

Remarks:  
 Depth to Water @ 24 hrs.: ---



Project Name: **Pigtail Branch Drainage  
Logan County, West Virginia**

**BORING NO.**

Project Number: **W13028**

**B-2A**

Depth, feet	Sample Type	Symbol / USCS	Location:	Offset:	Recovery %	RQD	Penetration Blows / 6 inches	Silt and Clay %	PL(%) NM(%) LL(%)					
			Surface El.: ---						10	20	30	40		
			Split Spoon                Shelby Tube Rock Core                Bag Sample											
<b>MATERIAL DESCRIPTION</b>										● SPT bpf				
			Gray SANDY SHALE		100	96								
45					100	98								
50					100	100								
55					100	100								
60					100	30								
			COAL											
65			Gray SHALE		100	50								
70			Bottom of Test Boring @ 68.0 ft.											

BASIC NGE LOG W13028 LOGS.GPJ NGELOG.GDT 4/10/13

Completion Depth:	<b>68.0 ft.</b>
Date Boring Started:	<b>3/27/13</b>
Date Boring Completed:	<b>3/27/13</b>
Engineer/Geologist:	<b>CEM</b>
Driller:	<b>NGE</b>

Remarks:

Depth to Water @ 24 hrs.: ---





Project Name: **Pigtail Branch Drainage  
Logan County, West Virginia**

**BORING NO.**

Project Number: **W13028**

**B-3**

Depth, feet	Sample Type Symbol / USCS	Location:	Offset:	Recovery %	RQD	Penetration Blows / 6 inches	Silt and Clay %	PL(%)      NM(%)      LL(%)						
		Surface El.: ---												
				<b>MATERIAL DESCRIPTION</b>										
0 - 11.5		Brown <b>SANDY CLAY</b> with rock fragments and sandstone boulders												
11.5 - 21.0		Gray <b>SANDSTONE</b>		100	50									
21.0 - 22.3		COAL		90	36									
22.3 - 25.0		Gray <b>SANDY SHALE</b>												
25.0 - 30.0		Gray <b>SANDY SHALE</b>		100	94									
30.0 - 35.0		Gray <b>SANDY SHALE</b>		100	100									
35.0 - 40.0		Gray <b>SANDY SHALE</b>		100	96									

BASIC NGE LOG W13028 LOGS.GPJ NGELOGSDT 4/10/13

Completion Depth: **58.0 ft.**  
 Date Boring Started: **3/29/13**  
 Date Boring Completed: **3/29/13**  
 Engineer/Geologist: **CEM**  
 Driller: **NGE**

Remarks:  
  
 Depth to Water @ 24 hrs.: ---



Project Name: **Pigtail Branch Drainage  
Logan County, West Virginia**

**BORING NO.**

**B-3**

Project Number: **W13028**

Depth, feet	Sample Type	Symbol / USCS	Location:	Offset:	Recovery %	RQD	Penetration Blows / 6 inches	Silt and Clay %	PL(%)      NM(%)      LL(%)				
			Surface El.: ---						<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="border: 1px solid black; padding: 2px;">☒</div> Split Spoon           <div style="border: 1px solid black; padding: 2px; margin-left: 20px;">☒</div> Shelby Tube         </div> <div style="display: flex; justify-content: space-between; align-items: center; margin-top: 5px;"> <div style="border: 1px solid black; padding: 2px;">■</div> Rock Core           <div style="border: 1px solid black; padding: 2px; margin-left: 20px;">B</div> Bag Sample         </div>				
MATERIAL DESCRIPTION									10	20	30	40	
			Gray SHALE			100	100						
45						100	100						
50						100	70						
			COAL		51.5								
55			Gray SHALE		54.2								
						100	72						
					58.0								
60			Bottom of Test Boring @ 58.0 ft.										
65													
70													
75													
80													

BASIC NGE LOG W13028 LOGS.GPJ NGELOG.GDT 4/10/13

Completion Depth: **58.0 ft.**  
 Date Boring Started: **3/29/13**  
 Date Boring Completed: **3/29/13**  
 Engineer/Geologist: **CEM**  
 Driller: **NGE**

Remarks:  
  
 Depth to Water @ 24 hrs.: ---





Project Name: **Pigtail Branch Drainage  
Logan County, West Virginia**

**BORING NO.**

Project Number: **W13028**

**B-3A**

Depth, feet	Sample Type	Symbol / USCS	Location:	Offset:	Recovery %	RQD	Penetration Blows / 6 inches	Silt and Clay %	PL(%)      NM(%)      LL(%)									
			Surface El.: ---						10	20	30	40						
			Split Spoon     Shelby Tube Rock Core         Bag Sample															
			<b>MATERIAL DESCRIPTION</b>															
0 - 12.0			Brown <b>SANDY CLAY</b> with rock fragments and sandstone boulders															
12.0 - 23.3			Gray <b>SANDSTONE</b>		50	0												
23.3 - 25.0			COAL		100	78												
25.0 - 25.5			COAL		100	50												
25.5 - 35.0			Gray <b>SANDY SHALE</b>		100	48												
35.0 - 40.0			Gray <b>SANDY SHALE</b>		100	70												
40.0 - 58.0			Gray <b>SANDY SHALE</b>		100	70												

BASIC NGE LOG W13028 LOGS.GPJ NGELOG.GDT 4/10/13

Completion Depth:	<b>58.0 ft.</b>
Date Boring Started:	<b>3/29/13</b>
Date Boring Completed:	<b>3/29/13</b>
Engineer/Geologist:	<b>CEM</b>
Driller:	<b>NGE</b>

Remarks:

Depth to Water @ 24 hrs.: ---



Project Name: **Pigtail Branch Drainage**  
**Logan County, West Virginia**

Project Number: **W13028**

**BORING NO.**  
**B-3A**

Depth, feet	Sample Type	Symbol / USCS	Location:	Offset:	Recovery %	RQD	Penetration Blows / 6 inches	Silt and Clay %	PL(%)      NM(%)      LL(%)										
			Surface El.: ---																
			<b>MATERIAL DESCRIPTION</b>																
			Gray SANDY SHALE		100	100													
45					100	94													
50					94	94													
			52.7																
55			VOID		24	13													
			56.8																
			58.0																
60			Bottom of Test Boring @ 56.8 ft. Piezometer installed @ 58.0 ft. w/10 ft. screen																
65																			
70																			
75																			
80																			

BASIC NGE LOG W13028 LOGS.GPJ NGELOG.GDT 4/10/13

Completion Depth: **58.0 ft.**

Date Boring Started: **3/29/13**

Date Boring Completed: **3/29/13**

Engineer/Geologist: **CEM**

Driller: **NGE**

Remarks:

Depth to Water @ 24 hrs.: ---